

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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ABSALOM FRANCIS.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES*—No. CXXI.

BY J. CLARK JEFFERSON, A.R.S.M., WH. 8C.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal.)
[The Author reserves the right of reproduction.]

METHODS OF WORKING WITHOUT ATTLE PACKING.

THE WORKING OF SEAMS OF BROWN COAL.

The mode of occurrence of a seam of brown coal necessitates a different method of working to those usually employed for seams of ordinary (stone) coal. The principal characteristics of the mode of the occurrence of brown coal are the great thickness, varying from 4 or 5 yards to 25 yards in thickness, the slight inclination, the seam often lying perfectly level, the small depth at which the seams lie beneath the surface, though this is often accompanied by a heavy pressure owing to the slight cohesion among the strata forming the roof, which very often consist of highly plastic and sandy marls and clays containing large quantities of water. Water is also often present in the deposit itself, the brown coal being generally highly porous, and of a comparatively soft nature, so that the main level, or levels, are generally accompanied by a parallel level on the low side, to serve as a large drain for the field to be worked. On this account the shaft must be sunk as far to the dip as possible. In consequence of the mild (weak) and porous nature of the deposit it is often necessary to drive forwards the levels and roads through the deposit by means of driving timbering (spilling), and in some cases walling must be resorted to. When the seam is of considerable thickness, and lays nearly horizontal, the main roads are usually driven on the lower part of the seam; when the inclination is considerable the position of the main roadways in the deposit will depend more on the character of the different portions of the seam. The arrangement of the principal roadways is determined on pretty much the same principles as those of ordinary collieries. With regard to the driving of the accessory roads and the formation of the pillars the principle is closely adhered to that the pillars shall be worked away as soon as possible after their formation; or rather that the requisite roads for the formation and working away of the pillars shall not be driven before one is ready to follow it up by the immediate working away of the pillars themselves. With regard to the size of the pillars that is dependant chiefly on the nature of the deposit and the roof. When the roof is of a mild weak nature, so as readily to break down, and the pressure not excessive, the pillars will be made the smaller the stronger the coal, the pillars being the smallest when the conditions of a broken roof, slight pressure, and a strong coal are combined. The greater the pressure and the weaker (less compact) the coal so much the greater must be the size of the pillars.

The usual mode of working seams of brown coal is by some modification of pillar working. From the main level a roadway is set off at right angles on the full rise of the deposit, and from this the levels are driven right and left, or in both directions if double sided, to the boundary of the field to be worked. The levels are usually driven much further apart than the thickness or length of the pillars. The pillars are formed by driving a road, called "breaking in," from the lower level to the next level above; the large pillar thus formed being generally divided into two, sometimes into three, smaller pillars by means of short levels (called "dividing places"). In Saxony and other parts of Germany the size of the pillars is determined by so called "field lengths," such being the distance between a pair of door sets, with which timbering the levels and rise roads are usually supported. This length usually amounts to 5 ft. The space covered by the pillar and the roads (level and road), which are allowed to come in at once, is called a "break."

Sometimes the workings are arranged so that the pillars are got out in a strike direction, and at other times towards the full rise of the deposit. In the former case the rise roads from the main level are driven much further apart, in the latter case much nearer together. The formation and the size of the pillars are determined in several ways. In Saxony, where the workings are opened out chiefly by means of levels, the pillar formed by the "Bruchort" is generally divided in the middle by a short level, and both the small pillars are worked out simultaneously uphill to the rise. Where the workings are opened out chiefly by means of rises from the main level the pillars are formed by means of short rises from one level to the other. The levels are in this case driven closer together. The pillars are worked out each in the direction of the rise road, the order of succession in which the pillars are worked out being the opposite. In the latter case the sides of the pillar are only 5 to 6 ft. in length, so that the whole space which is allowed to come in on working away the pillar, and which includes besides the pillar the roads on two sides, is 10 ft. square. In other cases the size of the pillar is 2 "fields" long and 2 broad, or 10 ft. square; and the resulting "Bruch," which includes the roads on two sides, is 15 ft. square. In many cases two adjoining pillars, the one to the rise of the other, are worked away simultaneously, the working away of each pillar being commenced on the low side. If the pillars are only 1 field length on the side, and the roadways of the same width, the resulting Bruch will be 10 ft. measured in the direction of the strike, by 20 ft. measured in the direction of the dip. When the coal is not strong the pillar is made 2 field length on the side, so that the resulting Bruch will be 15 ft. measured in the direction of the strike and 30 ft. measured in direction of the dip. In this latter case the levels will be driven 30 ft. apart, and the pillars formed by a short level driven midway up the rise, set off from the ordinary levels.

In working the brown coal deposit near Bonn, the mode of working greatly resembles that which we have described as practised in working the thick seams in Upper Silesia. The deposit, which is upwards of 4 yards in thickness, is divided into two portions by an interposed layer of bituminous woody matter. The seam is opened out by means of rise roads put up from the main level. From the rise roads the working levels are driven, the roof being formed by the bituminous deposit. From the working levels rises are put up to the level next above, which in the usual course of working now forms part of the goaf. These rises are likewise only driven beneath the bituminous wood deposit. From the rise levels are driven towards the goaf through the pillars left between the rises. These pillars, however, are not thirled until all the other pillars to one side have been worked out. These short levels, or thirlings, are driven 6 ft. wide, so as to leave 3 ft. of pillars between them. Before working away the pillars thus formed the roof coal is taken down over the short level, and over that portion of the rise surrounding the pillar, the pillar being left to keep up the roof until this portion of the coal has been completely worked out, when the pillar is worked away as rapidly as possible. The roof usually breaks down soon after over the whole of the space (9 ft. measured on the full dip) previously occupied by the pillar and the level, and that portion of the rise adjoining the pillar. In a similar manner the next rectangular space below (9 ft. measured on the full dip and equal in width to that of the pillar, plus the width of the rise) is worked away by first driving a short level, 6 ft. in width, leaving the pillar above 3 ft. in thickness, and then working away the roof coal (that above the layer of bituminous woody matter) over this level, and over that portion of the rise adjoining the pillar, and lastly the pillar itself. It is not essential to this mode of working that each pillar between two rises shall be worked out before the next adjoining pillar is commenced, and if each of these pillars is commenced when the adjoining pillar has been worked out half way down to working level below, the output can be doubled. Strong timbering is required to prevent the gobbin rolling into the rises when the roof breaks down.

Sometimes the deposits of brown coal are met with highly inclined. The following example from Lottner-Serilo's Manual will suffice for describing the mode of working. The brown coal deposit at Sagor, in East Carniola is upwards of 35 yards in thickness, and dips at from

60° to 80°. The deposit is divided into two seams by a coal parting 12 in. thick, which latter is enclosed between two very thin strings of argillaceous sandstone. The hanging portion is 12 yards in thickness, and divided into 12 seams, the lying portion is 23 yards in thickness, and divided into 27 seams, by numerous partings of bituminous slate, which make this lying portion unworkable in many places, so that the hanging portion, which is dark and compact, is often worked alone. The floor or lying wall of the deposit consists of a white plastic fire-clay, whilst the roof or hanging-wall consists of a bituminous slate covered by clay-slate, marl, sand, sandstone, and conglomerate.

The deposit is opened out by means of adits, and sometimes by inclined and vertical shafts for winding and ventilation, from which cross-cuts are driven into the deposit. The length (measured in the direction of the strike) of any portion opened out as one working is usually determined by the position of the principal throws, and varies usually between 200 yards and 400 yards. This latter length is seldom exceeded, so as to be able readily to isolate the workings in case of fire. Supposing that the deposit has been reached by an adit, a main level is driven from the adit in the centre of the hanging portion of the deposit right and left to the boundary of the working. From this level a cross-cut is driven to the lying wall of the deposit in the middle of the field. From this cross-cut a vertical staple pit is put up to the top boundary, where it is fitted up with a brake arrangement for lowering the coal to the cross-cut. An inclined staple is also put up from the cross-cut in the coal parting to the top boundary of the field opened out for working. The deposit is worked away from the top boundary down to the cross-cut in stages from 9 ft. to 16 ft. in height, which are more or less filled with attle packing. The height of the stages is dependent on the character of the neighbouring rock, the compactness of the coal, and the tendency of the old goaf to evolve carbonic oxide. The separate stages are opened out by driving cross-cuts from the vertical staple pit to the hanging-wall, or when the lying portion also is worth working to the hanging and lying walls. The cross-cuts are generally driven 6 ft. high by 5 ft. wide. The floor of the first cross-cut lies 9 ft. to 16 ft. below the top side of the coal (next the goaf), according as the stage is intended to be 9 ft. by 16 ft. in height, so that in the one case 3 ft. and in the other 10 ft. of coal will remain as roof above the cross-cut. From these cross-cuts or cross levels as they are more properly called, levels 6 ft. high and 5 ft. wide are driven parallel to and at a distance of from 3 ft. to 9 ft. from the hanging-wall towards both side boundaries of the field—i.e., for a length of 100 to 200 yards. From these levels, cross levels, or stalls 6 ft. to 9 ft. wide are driven every 12 to 18 ft. part, leaving pillars from 6 ft. to 12 ft. wide. The width of the stalls and the thickness of the pillars depend on the character of the coal. Is the latter of a loose friable nature both stalls and pillars are usually made 6 ft. wide; is the coal on the contrary strong, the stalls will only be taken 3 ft. wide, whilst the pillars will be 9 ft. in thickness.

The pillars thus formed are worked away in the following manner:—When the stalls are 6 ft. in height, and only 3 ft. of roof coal is left up, the pillar is worked away to the height of 6 ft., by taking off slices 1 yard wide in the direction of the strike. The roof coal is, in the meantime, supported by props and bars, until the roof coal has been cut all round, when the props are robbed, and the roof coal allowed to break in. When the stalls are driven of the full height of the stage the 1 yard slices are carried at once to the full height, and the breaking down of the roof is caused by robbing the timber in the stalls. When the bituminous slate-forming part of the hanging-wall of the deposit, and which as above mentioned has a tendency to spontaneous combustion, does not break in during the working of the first stage, the next stage below is taken of the same height (10 ft.), and worked out in exactly the same manner as the first. When the slate breaks down during the working of the first stage the next stage below is taken 11 ft. in height. When the second stage is made 10 ft. in height the next below (third) is taken 16 ft. high, in order to be able to find room for the dirt and stone and packing. The stalls in the third stage are made 6 ft. high, and 6 ft. to 9 ft. wide, 10 ft. being left up as roof coal. The pillars are left from 3 ft. to 6 ft. in thickness, according to the strength of the coal, and are sliced away in 1 yard pieces, though only to a height of 6 ft.; the space thus excavated in the third stage being packed tight with fire-proof material—generally the marl in the hanging-wall of the deposit.

When the lower 6 ft. of the third stage has been thus worked out and packed with fire-proof material the stalls are then carried 6 ft. higher, and of the same dimensions as those immediately beneath, the packing of which now forms the floor of the new cross levels. The remaining 4 ft. of coal forming the roof of the pillars are worked away in the same manner as in the case of the upper stages. Since the object of the packing is to interpose a fire-proof material or covering between the bituminous slate (which has a great tendency to spontaneous combustion) and the coal below, only one stall and one pillar are attacked simultaneously, since the breaking down of the roof can be to some extent controlled. The packing material is usually introduced down special shafts placed in the deposit close to the lying wall, and connected in the level of the stage—in which the packing is inserted—with the working.

Although we have described the working of each stage successively it is usual to work three stages simultaneously, so, however, that the working away of each stage is from 25 ft. to 30 ft. in advance (nearer the staple pit) of the next stage below. Each 11 to 12 yards vertical depth of the deposit is thus worked out in three stages with the insertion of a layer of fire-proof material. The conveyance is sometimes effected to the working places by means of wagons; at other times the conveyance along the stalls is by means of carrying in trays or baskets. The ventilating current descends down the shaft through which the packing material is introduced, spreads itself through the stalls and levels, and emerges from the mine along the adit.

DEPHOSPHORISATION OF IRON.

MR. J. E. STEAD, of the firm of Messrs. Pattinson and Stead, analytical chemists, of Newcastle and Middlesborough, read an interesting paper before the Cleveland Institution of Engineers, in the Literary and Philosophical Society, Middlesborough, on the Dephosphorisation of Iron, on Monday. The chair was occupied by Mr. JOHN GJERS. The subject is of the greatest possible importance to the ironmakers of the North of England, and, consequently, very general interest is manifested in it. Mr. Stead has been closely associated with Mr. E. Windsor Richards, of the firm of Messrs. Bolckow, Vaughan, and Co., through whose exertions the Thomas and Gilchrist process of making steel from Cleveland iron has been brought to a successful issue. Under the head of puddling, and the effect of the different conditions of the puddling-furnace, Mr. Stead described fully the removal of phosphorus, showing first that when the charge was at an excessively low temperature the metal rapidly became solid, and retarded the elimination of the phosphorus. Second, that when the metal was puddled at as high a temperature as possible it showed that there was a greater removal of phosphorus. Third, that when iron was used containing no silicon it proved clearly that the theories advanced by Mons. Pourcel, Mons. Gautier, and others were not correct, they having held that it was absolutely necessary that silicon should be present in iron, in order that phosphorus could be eliminated. Fourth, that when manganese was present in considerable quantity, a very perfect elimination of phosphorus resulted; that a larger amount of manganese at first retarded the elimination, but when the ratio of manganese and phosphorus were about equal, then the passed out together into scoria, leaving only .06 per cent. of phosphorus in the finished product. Fifth, the puddling process as originally conducted showed that about 70 or 80 per cent. was eliminated. He showed also that it was not due to the effect of manganese in the scoria in the puddling furnace that there was a beneficial effect in the removal of phosphorus, but that it was due to the manganese in the pig itself. He described the process of Mr. Isaac Lowthian Bell, M.P., which was known as the fluid oxide process, and remarked that the important discovery was due to that gentleman, that at comparatively low temperatures fluid oxide of iron had a maximum action on phosphorus and a minimum action on carbon when present together in fluid iron. The process of Mr. Bell was, as

they knew, conducted at a low temperature. The phosphorus was reduced during the operation from 1½ to .23 per cent., and the carbon from 3.57 to 3.22 per cent. Mr. Stead next described the Krupp process, which had been in operation for several years at the Essen Works, and by which it was shown that iron containing about .75 per cent of phosphorus was reduced to .10. The lecturer then, at considerable length described the Thomas and Gilchrist process, which is now the subject of litigation in the German law courts, and which is being adopted in different parts of the world. In order to distinguish in terse terms the two Bessemer processes—the old and the new—Mr. Stead called the former the "acid" Bessemer process, and the latter the "basic" process. Lime had been added for the purpose of causing the slag to be fluid in the silicious lined Bessemer converter, but it was utterly impossible to obtain a basic cinder in the presence of the ganister lining by the addition of oxide of iron or any other base. The fact that it was imperative to have a basic cinder and the lining of similar character was first thoroughly recognised by Mr. Snelus, of Workington, and quite independently some time afterwards by Messrs. Thomas and Gilchrist, who, with the assistance of Mr. Martin, manager of the Blaenavon Iron and Steel Works, and Mr. E. Windsor Richards, of Messrs. Bolckow, Vaughan, and Co.'s works, demonstrated beyond all doubt that Cleveland iron could be purified in a basic converter by the Bessemer process. Mr. Stead also described the manufacture of the brick, remarking that the Thomas and Gilchrist brick was exceedingly refractory; the dinas fire-bricks, and even platinum, could be fused before it was effected. It was, in fact, the most refractory brick that had ever been produced. With regard to the process of dephosphorisation, as at present conducted, the phosphorus was removed after all the other elements were burnt out by blowing after the carbon flame had disappeared, and which was technically known as the "after-blow." The silica and phosphoric acid produced by the oxidation of the silicon and phosphorus were absorbed at the upper part of the bath, and the upper surface of the bath of metal by the introduction of about 20 or 25 per cent. of lime in lumps. It was added in that form to prevent it being carried mechanically away by the out-rushing gases. It had been noticed that the acid nature of the cinder must be very corrosive, and also the lining. It was intended to blow lime through the metal in a very fine condition, and it was expected the cinder would be thoroughly neutralised, and cease to have any great injurious action on the linings of the converter. It was highly probable he thought that when this method was adopted not only would the linings be materially saved, but the phosphorus would be eliminated during the earlier stages of the blow, a result which was most ardently desired. The lecturer referred to the Mushet process, and, in conclusion, he expressed a sanguine belief that the Thomas and Gilchrist process would eventually, and at no distant date, prove to be the most successful, and that steel making from Cleveland iron would be conducted on a very large scale, the steel ranking with other steels which had long been established, and which were extensively used. The interesting paper was illustrated by a variety of diagrams, which showed the different processes, and indicated a complete history of the several methods for the purification of iron.

At the conclusion of the reading of the paper, the President stated they could not discuss such an important paper that evening, but after it had been printed in their Transactions they would no doubt fully discuss it at their next meeting. Mr. Windsor Richards, in moving a vote of thanks to Mr. Stead for his very valuable paper, said it must be satisfactory for pig-iron makers to know that there would be a good market for mottled and white iron, as the Germans were now asking Cleveland ironmasters for white iron for steel making. At Heerde and other places the results obtained by the use of white iron were most excellent. At Messrs. Bolckow, Vaughan, and Co.'s Eston Works they had found that the Bessemer converters had been defective at the nose. It was necessary to have a much larger outlet, so that the gases might escape. They were getting two big and improved converters constructed, so as to obviate the defects mentioned, and he hoped before long that they would be making steel from Cleveland iron night and day. The Chairman put the vote of thanks to the meeting, which was carried by acclamation.

SOUTH AUSTRALIA.

[FROM OUR OWN CORRESPONDENT.]

I regret that there has been so little to say respecting mining in the colony for so long a time. The steady rise in the copper market during the past three months, however, affords some prospect of my being able ere long to resume a regular correspondence with the *Mining Journal*. It is earnestly to be hoped that the improved state of things will continue for the sake of all concerned. A further rise of 5½ per ton will enable our mines to resume full work, and will add at least half a million sterling to the value of our exports for the next year. Of course, as you are aware, our exports of copper have not entirely ceased, but they have been 500,000 lbs. less in amount than they would have been had the market price been remunerative. The last report of the Moonta Mine, which will have reached you ere this, shows a small profit for the year, although operations have necessarily been very much restricted. Capt. Hancock, the manager, has made good use of the slack times by carrying on the work of exploration in the mine, and it is said that the wisdom of this course will be made apparent as soon as more vigorous work is again resumed, some very fine courses of ore being ready for raising. Besides this, the workings of the great mine have been kept in good order, so that no time should be lost when the price of copper should warrant the resumption of active operations. I believe the adjoining Hamley Mine is also in a very satisfactory state, and will be able at a short notice to turn out a quantity of fine ore. The Wallaroo, Kurilla, and other neighbouring mines are also in a condition to push ahead and raise ore whenever orders are given to do so. The working of one of the most recently discovered mines, near Salisbury, 12 miles from Adelaide, have been suspended for a few months pending the arrival of better times. The prospects of opening up a good lode are still very encouraging.

A discovery, which may prove to be of considerable importance, has been made at the Burra during the past fortnight. The process of boring for a supply of water for the town of Koorunga has been going on for some weeks past, and about ten days ago the borer passed through 6 ft. of good copper ore. It is supposed to be a lode hitherto undiscovered, but running between the old mine and the town of Koorunga. I have not heard the depth at which it was struck, but believe it is not much, if any, deeper than the lowest levels of the mine; I have since ascertained that it is within 200 ft. of the surface. It will be a fine thing if the discovery should prove of sufficient value to warrant the sinking of a shaft, which may result in the opening up of a fresh deposit of ore in this once rich mining district.

Boring for water is being carried on with encouraging results in various localities, and it is highly probable that these operations may lead to discoveries of metallic lodes, with which the country abounds. The powerful boring machines, with Diamond drills, ordered by the Government from America, are now shortly expected, and it is hoped that they may greatly benefit the colony by providing supplies of water in localities where it is at present deficient. There are thousands of square miles of grazing land of fair quality, the value of which would be immensely increased if a permanent supply of good water for the stock could be ensured. The geological formation of many parts of the country is such as to lead to the expectation that boring for water would be successful, and great results are hoped for from the introduction of the powerful Diamond drill machines.

Public attention has recently been afresh directed to the fact that diamonds having been found in the old gold diggings near Echunga, about 19 miles to the south-east of Adelaide, it is probable that systematic search would be rewarded by the discovery of a valuable deposit of those gems. Capt. J. H. Biggs, then Warden of the Gold Fields, sent home to Mr. J. Boothby, C.M.G., our Commissioner at the Paris Exhibition, two diamonds which had recently been found near Echunga. Mr. Boothby submitted them to a London diamond merchant, who had them out, and reported very favourably as to their qualities, except that they were rather "off colour." He also expressed a strong opinion, confirming what has often been said here—that there must be more where those were obtained. The Government

* Being Notes on a Course of Lectures on Mining, delivered by Herr Berggrath Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

thereupon employed a gentleman who had had some experience in the South African diamond diggings to visit and report on the ground near Echunga. The report was a very favourable one, and an attempt was made, unsuccessfully, to start a company for the purpose of diamond digging. Money was too scarce at the time. Other persons from the South African diggings have also spoken very favourably of the appearance of the ground at Echunga. I took a good deal of trouble some time ago to ascertain as closely as possible the number of diamonds that had been found there, and I came to the conclusion that not less than 120 had been saved, while probably a much larger number had escaped the notice of the diggers, who for the most part did not know them as diamonds, but merely picked them out from amongst the gold as bright little crystals. It is probable that if the search for diamonds were undertaken by persons who understood the matter that some good finds might be made. I believe they have occasionally been met with in other parts of South Australia, as I know several other gems have been found here. One Echunga diamond which I have frequently seen is in the rough a beautiful and perfectly crystallized stone, showing distinctly 48 facets; I think its weight is 3½ or 4½ carats, and it is a stone of the first water.

It is satisfactory to say that the prospects of the coming harvest are very good. The season has been favourable, and reaping will commence within three weeks. A blitherskiting scheming Frenchman, named Edouard Bourband, has just raised a "scare" here by most positively asserting that he had discovered the dreaded pest, "Phylloxera Vastatrix," in one of our vineyards; he seems to have done this with the view of obtaining the appointment of Inspector of Vineyards, as he made that a stipulation with the Government as a reward for pointing out the affected vineyard. As soon as he was appointed he found out that he "had made a mistake"—the terrible Phylloxera proving to be a comparatively harmless little aphid, common to rose bushes. Great indignation is felt at Bourband's deceitful conduct.—*Adelaide, Nov. 3.*

MINING IN VICTORIA.

A correspondent of the Times, writing from Melbourne, Nov. 1, says—It is quite impossible within the limits of a single letter to convey to your readers an adequate notion of the absurdities, inconsistency, and lamentable effect of our new Tariff Bill. The proprietors of mines are one of the classes of persons who are beginning to be restless under the incubus of Protection. In the proportion in which mining is becoming less remunerative the people engaged in it naturally feel the pressure of the heavy taxation on mining machinery and tools. Picks and shovels soon wear out and must often be replaced by new ones; and an instance was given the other day in one of our newspapers of a miner being obliged to pay many pounds for a new piece of steel machinery. There are many mines which can only be worked at a profit by careful economy in labour and mining plant, and, therefore, the heavy taxation on new plant can in such cases only be reasonably recouped to employers by their cutting down wages proportionately. Thus during the last month great excitement, culminating in a strike, has prevailed at Sandhurst, the capital of one of our largest gold fields—an excitement caused by a resolution of a number of the principal employers to reduce the wages of the operative miners from 45s. to 42s. a week. A Mr. Lansell, a proprietor of several mines, and admitted by his own workmen to have been always a most liberal employer, has at last felt that wages must come down, and he announced the fact, accompanied by a statement that he would not employ men favourable to Protection. This brought down upon him a bitter personal attack from the principal Protectionist journal, followed by a special deputa-tion of miners and miners' friends to remonstrate with him; but, after listening patiently to all they had to say, he returned an answer so characteristic, blunt, and telling, that the conductors of the grand remonstrance had little to urge in reply beyond the rather irrelevant facts that they had wives and children, and that 45s. a week, in their judgment, was not higher wages than employers could afford to give. Mr. Lansell, although a fortunate and wealthy capitalist miner, who has risen from the ranks, reminded his visitors that employers were exposed to peculiar vicissitudes in mining; that although they might make great gains to-day, these might be followed by great losses to-morrow; that he paid as high wages as any other mine owner, and was doing this even on some unprofitable mines in the hope that they might become profitable before he found it necessary to discharge hands. He reminded them that the purchase of labour was like any other contract; that a seller of labour had to find a buyer, and that as the seller would not sell to Mr. Lansell for 42s. a week if he could get more elsewhere, so he (Mr. Lansell) had a right to refuse to give 45s. for what he could purchase at 42s. Of course, this kind of logic failed to satisfy those to whom it was addressed, especially as Mr. Lansell uncompromisingly assailed the Protectionist Government as mainly responsible for the depression of the mining interest, and expressed his belief that matters would not materially change for the better until "the Bourke-street Firm," as he called the present Legislative Assembly, was got rid of. The labourers' partisans in the Press abuse Mr. Lansell and the employers generally, alleging, as usual, that no reduction of wages is necessary, and that the employers' movement is induced only by a desire to get rid of the Government. I do not believe this to be the case; but, even if it were, we should still have to ask, "Why do the employers desire to get rid of the Government if that Government be a good one?" The principal Government journal recommends the Government to forfeit the owners' leases for nonfulfilment of labour clauses unless the employers give way to the men—a style of confiscation which is altogether unique in this part of the world. Could the Ministry act on such a recommendation we might next expect them to repudiate our National Debt unless the bondholders consented to a composition or to a reduction of the interest. This putting of the Government screw on the employers, avowedly for the purpose of compelling them to yield to the demands of the men, may, of course, be applied to any extent until the employers are reduced to the alternative of abandoning their property at once to the men or working it at a loss until they themselves are ruined. The men may yet come to learn that 42s. a week for ordinary mining work, and that in a country where the common necessities of life are cheaper than in England, is a position much more easily lost than recovered; for mining cannot now be carried on in Victoria to any great extent without the investment of considerable capital.

IMPORTANT TO SHAREHOLDERS IN THE HYDRAULIC GOLD MINES OF CALIFORNIA.

The miners and farmers of California have been in open hostility for many years as to the debris washed from the mines. Each interests represents many millions of capital—hence the subjoined decision, which is virtually in favour of the miners, is of incalculable importance:—

THE MINERS VICTORIOUS.—THE DEBRIS QUESTION VIRTUALLY SETTLED SO FAR AS THE PENDING SUITS ARE CONCERNED.—How the NEWS OF THE DECISION OF THE SUPREME COURT ON THE DEBRIS QUESTION WAS RECEIVED.—Yesterday afternoon the telegraph flashed the information that the first important debris suit had been disposed of by a decision of the Supreme Court, which sustained the demurrer of defendants to the complaint on the ground of a misjoinder of the parties defendant. This decision does not enter into the merits of the case, but it simply requires that each individual farmer, in case he seeks redress, must sue the several individual mining companies for the amount of damage which it may be claimed has been done by each to his particular farm. This puts the case into such shape that it would be impossible to obtain sufficient data to secure a verdict for plaintiff or assess damages, hence it really disposes of the matter so far as the Courts are concerned. The ranchers will now be obliged to seek relief through legislation if they desire pay for the damage which may have been done by mining operations. Soon after the welcome news for the miners was received a display of gladness was everywhere visible. Flags were flung to the breeze, and 100 guns were fired. The bells pealed out the joyous intelligence, and the whistles from the several mills screamed it through the air. The people felt that a more important victory had been won at the bar of justice than any ever achieved on the tented field. There was a feeling that the rights to property which had been secured by much labour, privation, and hardship were to be protected. There has been a feeling of distrust as to the result of this important suit, which has been quite a drawback to our mining interests. People felt that their occupation in the mines and the value of their homes were at stake. Now the question is virtually settled, and the aggressive spirit of the farmers has received a damper which they will not soon overcome. The precedent cited by the counsel on each side to the effect that the defendants were rightly or unjustly united in this action, were nearly equal in number both in American and foreign practice, but the cases were all of a different nature from

this one. The concluding part of the decision reads as follows:—"At law, where an action for tort is brought against several co-defendants, it is essential that the wrong complained of be joint. (Dicey on Parties, 449.) This rule is thoroughly understood, and it is not disputed. If there are any exceptions in equity they have not been called to our attention. We are convinced that none can be found which will authorize the joinder of defendants attempted in the proceeding before us. We have no doubt that the objections to the complaint above considered could properly be presented by a demurrer on the ground of misjoinder of parties defendant. Judgment and order reversed, and cause remanded with directions to the Court below to sustain the demurrer to the complaint. Remittitur forthwith."—*Nevada City Herald, Nov. 18.*

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week business has been quiet, although dealings have commenced for the new account—Dec. 31—but the last account of the year is always a quiet one. Prices, therefore, generally rule easier, and investors could not select a more favourable opportunity than this for making purchases in view of the improvement in business anticipated next year. In shares of coal and iron companies the movements for the week comprise advances of 4½ per share on Bolckow, Vaughan, A.; Shotts, 1½; Fife Coal, 10s.; Monkland (pref.), 6s. 3d.; Marbella and Monkland (ordinary), each 1s.; but Ebbw Vale and Steel Company of Scotland are each 5s. lower; Chillington, 1s. 3d.; and Clyde Coal, 6d. The demand for iron appears to be increasing, prices hardening, and a considerable rise may be looked for. The home demand is increasing now faster than the foreign, as the feeling is gaining ground that the improvement is of a permanent character and progressive. Benhar has been steady from 44s. 6d. to 45s. 6d.; there can be no doubt this company must be rapidly improving its position, as they have again advanced their prices 2s. per ton, and will make a further advance if the disagreement in the West continues between colliers and masters. At the meeting of the Cairntrable Gas Coal Company, on Dec. 24, a dividend of 6 per cent. will be recommended, as against 10 per cent. at this time last year. The yearly report of the North Lonsdale Iron and Steel Company recommends a dividend of 3 per cent., being the first the company has ever paid, but its prospects are very hopeful. The sales of the Scottish Australian Company for October have been 15,993 tons, as against 17,110 tons in October, 1878, the reduction being perhaps accounted for by a strike. Chapel House (debtors) and Staveley's wanted. Andrew Knowles and Sons are at 80s. dis. Antrim, B. 40s. Bilbao Iron, 17½; ditto (pref.), 25s. Bolckow, Vaughan, A. 79 to 79½; ditto, B. 40 to 41; ditto, stock, 131; ditto (pref.), 20. Capel House, 30s. to 35s. Clyde Coal, 73s. 6d. to 77s. Cardiff and Swansea, 40s. to 50s. Chillington, 55s. to 52s. 6d. Charles Cammell and Co., 8½ to 7½ dis. Ebbw Vale, 8 to 8½. Great Western, 80s.; ditto (pref.), 5; ditto (debtors), 61. John Brown and Co., 13 dis. John Bagnall and Sons, 30s. Lydney and Wiggwoll, 45s. Muntz's Metal, 15½. Mersey, 50s. dis. Monkland, 60s. 6d. to 62s.; ditto (pref.), 6½ to 6½. Marbella, 46s. 6d. to 47s. Mwyndy, 45s. to 50s. Nant-y-Glo and Blaenau (pref.), 23 to 24. Newport Abercrombie, 7½. New Sharlston (pref.), 6½. Omoa and Cleland, 21s. to 23s. Parkgate, par. Pel-sall, 60s. dis. Rhymney, 24. Skerrie, 5½. Steel Company of Scotland, 11½. Scottish Australian, 40s. to 45s. Sheepbridge, 15½ dis. Shotts, 70 to 72. Steel Company of Canada, 3 to 5. Sandwell Park, 20. South Wales, 75s. Thorp's Gawler Hall, 50s. to 60s.; ditto (pref.), 10 to 10½. Tredgar, B. 21 to 21½. Ulverston, 10½ dis. West Cumberland, 15½.

Shares of foreign copper and lead companies continue firm. On the week Rio Tinto (5 per cent.) have advanced 4½ 10s. per share, Rio Tinto (shares) 10s.; ditto (7 per cent.) and Huntington each 2s. 6d., while Tharsis are 12s. 6d. easier, and Canadian 6d. Cape shares are now ex div. The report to hand this month from the Yorke Peninsula Mine is very good, and the shipments were 202 tons as against 155 tons in the corresponding period of 1878, while the amount on hand is also much larger. The company announces that the funds to meet 7 per cent. draw-bonds, and the company has the advantage of 10s. of it in sight. Asbestos are at 22s. 6d. Carn Brea, 54. Clementina, 20s. Devon Great Consols, 6½. East Roman Gravel, 10s. East Van, 45s. East Caradon, 60s. East Oraven Moor, 9½. Glenroy, 15s. Great Holway, 90s. Great Laxey, 18½. Grogwinlow, 70s. Hington Down, 11s. 9d. Killfret, 10s. to 15s. Leadhills, 91s. 3d. Ladywell, 10s. to 12s. 6d. Marke Valley, 30s. North Busy, 70s. Pant-y-Mwyn, 45s. Prince Patrick, 50s. Penyrorsedd, 25s. Roman Gravel, 12½. South Breck, 30s. South Darren, 55s. South Caradon, 75s. South Condurrow, 12½. Shankville, 15. West Van, 23½. West Fyfe, 12s. 6d.; Parle's Ash, 7s. 6d. West Asherton, 67½. West Pearly Bridge, 45s. West Chiverton, 90s. Wheel Kitty, 55s. Wheel Owles, 110 to 130. Wheel Uny, 28s. Wheel Comford, 50s. Wheel Crebtor, 7. Wheel Grenville, 9. Wheel Peevor, 19½.

Shares of gold and silver mines quiet. Richmonds have rather an upward tendency. This week's run is \$30,000. The half-yearly statement of the company has also been issued, which is favourable, the profit having been about 70,000. The produce was 4844 tons lead, 554,288 ozs. silver, and 14,499 ozs. gold. The half-yearly report of the St. John del Rey is also issued, showing the net working profit was \$3,411; the produce was 208,304 ozs. against 207,496 ozs. in corresponding period. Sierra Buttes shares lower, on unfavourable report. The profit at Port Phillip for the four weeks ending Oct. 8 was 7611. Javali, in October, has a profit of 2311, and Chontales 1111. Australasian mines are at 5s.; Colorado, 32s.; Don Pedro, 14s. 6d.; Eberhardt, 61s. 3d.; Emma, 12s. 6d.; Exchequer, 2s. 6d. to 5s.; Flagstaff, 27s. 6d.; Frontino, 55s.; I.X.L., 3s. to 5s.; Javali, 5s. to 7s. 6d.; Last Chance, 15s.; Mineral Point Tunnel, 30s. to 40s.; Pastorena United, 5s. to 7s. 6d.; ditto (pref.), 15s. to 20s.; Port Phillip, 8s. to 10s.; Rio Grande do Sul, 5s.; Ruby, 5s.; South Aurora, 10s. to 15s.; United Mexican, 60s.

Shares of oil companies prices firm. Broxburn have advanced 7s. 6d., and Uphall 6d. Young's Paraffin shareholders will get a dividend of 10s. 7½d. per share on Dec. 19, but last year it was 14s. 5½d. The shares opened at 14½ to 14¾ cum div., and have since touched 13½ ex div.; Runcorn Soap, 15 dis.

In shares of miscellaneous companies no particular change in prices to observe. The meeting of the Linmer Asphalt Company passed off well, as the Chairman said they were extending their operations, and satisfaction was being given by the work done; last year their working account was 3000, better than the previous year. Birmingham and Midland Counties Val de Travers, 12s. 6d.; Parle's Shipbuilding, 21 dis.; Neuchatel Asphalt, 5s. to 7s. 6d.; Palmers Shipbuilding, B. 7½ dis. In wagon companies prices of shares also firm. The report of the Bristol Wagon Company, although not declaring any interim dividend, reports that business is more active with them. Lancashire and Yorkshire shares wanted. Ashbury, 54 dis.; Bristol and South Wales, 6½; Birmingham, 15½; Gloucester, 9½; Metropolitan, 60s. prem.; Midland, 12½; Railway Carriage, 5½; Scottish, 4½ to 9; Swansea, 45s.; Union Rolling Stock Six per Cent. (pref.), 25s. prem.; United States Rolling Stock have declined from 17½ to 16½, 17½. In shares of chemical companies prices firm on the slight improvement noted in the trade. Langdale's are 70s. to 75s.; Lawes, 5 to 5½; ditto (pref.), 9½ to 10; and Newcastle, 80s.

PANT-Y-MWYN LEAD MINE.—The shares of this company are considered worth the attention of investors, as considerable progress is likely to be made in the next six months. A new engine, 40-horse power nominal, will be on the mine by the beginning of January, and the company are going to pay cash for it. The agent, a new one, says he can promise 25 to 30 tons of ore monthly, and when they get another 20 fms. down—say, in about three months—the returns are estimated to be 40 tons at least monthly. At the present time the returns more than pay expenses, including clearing and other dead work.

An estimate of the following prices of continuation current:—Contango, 41. 5½d. on Benhar Coal, 20. 2½d. on Canadian Copper, 9d., 10½d., 9d., 7½d. on Clyde Coal, 1½d., 2½d. on Glasgow Caradon, 1½d., on Glasgow Caradon (new), 9d., 1s. on Glasgow Port Washington, A.; 4d., 3d. on Huntington; 4½d. on Marbella; 3d. on Monkland Iron; 9d., 1s., 10½d. on Monkland Iron (pref.); 2½d. on Omoa and Cleland; 9d. on Rio Tinto; 10½d., 1s. on Steel Company of Scotland; 2s. 9d., 2s. 6d., 2s. 7½d., 2s. 9d., 3s., 2s. 9d. on Tharsis; 1s. 3d. on Broxburn Oil; 2½d. on Oakbank Oil.—Backwardations: 3d. on Uphall Oil; 6d. on Young's Paraffin. On comparing the making-up prices fixed to-day for the following shares with those current at last settlement for the same shares, the variations thus shown to have taken place during the account are as follows:—Rio Tinto shares have advanced 1½ 11s. 3d. each; ditto, Seven per Cent., 15s.; Richmond, 7s. 6d.; Huntington and Steel Company of Scotland, each 5s.; Monkland, 4s. 6d.; ditto (pref.), 3s. 9d.; Canadian Copper, 3s. 6d.; Marbella and Young's Paraffin, each 2s. 6d.; Glasgow Caradon (new), also Omoa and Cleland, each 2s.; and Clyde Coal, 1s. 6d. On the other hand, Glasgow Port Washington, A. are reduced 8s. per share; Tharsis (new), 5s.; Broxburn Oil, 1s. 9½d.; Glasgow Caradon, 1s. 6d.; and Uphall Oil, 1s. The remainder are unaltered—Benhar, Glasgow Port Washington, B. Rio Tinto Five per Cent., Shotts Iron, Tharsis, and Oakbank Oil.

STEEL COMPANY OF SCOTLAND.—It is said this company intend to dismantle the Blochairn Malleable Ironworks which they lately bought, and to remove the splendid machinery and plant to their present works at Newton, to be re-erected there in connection with large extensions. The machinery at Blochairn includes four forge-trains, 54 single and 20 double puddling furnaces, seven scrap furnaces, six mills for rails and plates, and nine large steam-hammers. The Steel Company have to supply the plates for most of the fleet of large new steel-plated steamers building for the Transatlantic trade, and they have as many orders on hand as will keep them in full operation for six months.

CANADIAN COPPER AND SULPHUR COMPANY.—The annual report of this company states that the new directors first directed their attention to insuring a proper trial of the vein of copper discovered at the Acton Mine, and arranged with Messrs. John Taylor and Sons to undertake the technical management of the company. Messrs. Taylor accordingly sent out an agent, who inspected and reported favourably as to the prospects offered, and the directors authorised the works to be proceeded with at the Acton Mine alone, although the agent also thought well of other of the company's properties. The accounts for the year ended June 30 last show a balance of expenditure of 31964, on the 12 months, of which 10221, has accrued since the present board came in in January last. The directors also let the Extraction Works to the Orford Nickel and Copper Company for 12 months at 5000, for the purpose of carrying on experiments as to the treatment of copper ores of a low produce by a new process. Should the process be successful it will be of immense value to the company, as it gives a very large quantity of poor ore, besides the income from the waste cones in very opportunistically when trials are being made at the Acton. The Orford Company are entitled by this agreement to take from the stopes in the Hartford Mine, at their own expense, such ores as they should mine and use, paying this company a royalty for them.

EAST CHIVERTON.—It is likely the next startling rise will be in the shares of this mine. The following particulars in regard to the speculation are, therefore, worth the immediate attention of all investors. A plan of the mine showing the workings, also one showing the section of the shaft and levels in the 74 west, going towards West Chiverton, should be procured. A very nice run of rich ore, some 12 fms. long, has been met with, the best being in the bottom or sole of the level. This the manager considers the top of a grand course or deposit of ore, similar to that in West Chiverton, which yielded 150,000c. in dividends from the 70 to the 120 fms. levels. As soon as the manager pronounced the lode in the two mines to be unquestionably one and the same it was decided to send the shaft right away to a 90 fms. level—a 16 fms. left. This has been accomplished, and the cross-cut in now being driven towards the lode, which the manager expects to intersect about the end of this month. A month or two will show its probable value, but long before that the shares will have a sure rise. So far as one can judge, it is likely to be as good a mine as West Chiverton, whose shares used to sell at 60½ each. Hence the margin for a rise exceeds anything at present offering in mining shares.

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per share up.	Previous.	Last.		
£10 .. 8 ..	£5 ..	£5 ..	Arnstorn Coal (Limited)	6½
10 .. 10 ..	4 ..	nil ..	Benhar Coal (Limited)	46s.
100 .. 60 ..	25s. ½ ..	nil ..	Bolckow, Vaughan, and Co. (Lim.)	79½
10 .. 10 ..	10 ..	10 ..	Cairntrable Gas Coal (Limited)	8
10 .. 10 ..	4s. ½ April, 1879 ..	10 ..	Chillington Iron (Limited)	67s. 6d.
10 .. 10 ..	10 ..	10 ..	Clyde Coal (Limited)	74s. 6d.
23 .. 20 ..	10s. Dec. 1874 ..	10 ..	Ebbw Vale Steel, Iron, and Coal (Lim.) ..	8½
10 .. 8 ..	nil ..	nil ..	Fife Coal (Limited)	5
10 .. 10 ..	nil ..	nil ..	Glas. Port Washington Iron & Coal (L.) B. ..	60s.
10 .. 10 ..	nil ..	nil ..	Ditto, A	75s.
10 .. 10 ..	nil ..	nil ..	Lochore and Capellrae (Limited)	20s.
10 .. 10 ..	nil ..	nil ..	Marbella Iron Ore (Limited)	47s.
10 .. 10 ..	nil ..	nil ..	Monkland Iron and Coal (Limited)	62s.
10 .. 10 ..	nil ..	nil ..	Ditto, Guaranteed Preference	6½
100 .. 100 ..	nil ..	nil ..	Nant-y-Glo & Blaenau Ironworks pref. (L) ..	24
6 .. 6 ..	nil ..	nil ..	Omoa & Cleland Iron & Coal (L. & Red.) ..	42s. 6d.
1 .. 1 ..	15 ..	15 ..	Scottish Australian Mining (Lim.)	20s.
10 .. 10 ..	nil ..	nil ..	Ditto, New	71½
10 .. 8 ..	nil ..	6 ..	Shotts Iron	11½
			Steel Company of Scotland (Lim)	

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per share up.	Previous.	Last.		
4 .. 4 ..	— ..	— ..	Canadian Copper and Sulphur (Lim.) ..	16s.
10 .. 7 ..	72s. 6d. ..	60s. ½ ..	Cape Copper (Limited)	33½
1 .. 1 ..	2½ ..	nil ..	Glasgow Caradon Copper Mining (Lim.) ..	26s.
1 .. 15s. ..	2½ ..	nil ..	Ditto, New	19s.
10 .. 9½ ..	nil ..	nil ..	Huntington Copper and Sulphur (Lim.) ..	43s.
4 .. 4 ..	— ..	— ..	Panulicillo Copper (Limited)	5
10 .. 10 ..	nil ..	nil ..	Rio Tinto (Limited)	8½
20 .. 20 ..	7 ..	7 ..	Ditto, 7 per cent. Mortgage Bonds ..	20
100 .. 100 ..	5 ..	5 ..	Do, 5 p. ct. Mor. Deb. (Sp. Con. Bids.) ..	90½
10 .. 10 ..	17½ ..	16½ ..	Tharsis Copper and Sulphur (Limited) ..	22½
10 .. 7 ..	17½ ..	16½ ..	Ditto, New	20½
1 .. 1 ..	— ..	— ..	Yorke Peninsula Mining (Limited)	5s.
1 .. 1 ..	— ..	— ..	Ditto, 15 per cent. Guaranteed Pref.	20s.

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per share up.	Previous.	Last.		
1 .. 1 ..	— ..	— ..	Australasian Mines Investment (Lim.) ..	5s.
5 .. 5 ..	7s. 6d. ..	7s. 6d. ..	Richmond Mining (Limited)	9½

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per share up.	Previous.	Last.		
10 .. 8½ ..	— ..	9 ..	Broxburn Oil (Limited)	17½
10 .. 7 ..	5 ..	5 ..	Dalmy Oil (Limited)	8½
1 .. 1 ..	15 ..	20 ..	Oakbank Oil (Limited)	40s. 6d.
1 .. 5s. ..	15 ..	20 ..	Ditto	3s. 6d.
10 .. 10 ..	2 ..	4 ..	Uphall Mineral Oil (Limited)	7
10 .. 10 ..	— ..	— ..	Ditto, B Deferred	10
10 .. 8½ ..	17½ ..	12½ ..	Young's Paraffin Light & Mineral Oil (L) ..	13½

Capital.	Dividends.	Rate per cent.	Description of shares.	Last price.
Per share up.	Previous.	Last.		
50 .. 25 ..	5 ..	5 ..	London & Glasgow Engineering & Iron Shipbuilding (Limited)	25
7 .. 7 ..	5 ..	nil ..	Phospho Guano (Limited)	5½
10 .. 10 ..	5 ..	5 ..	Scottish Wagon (Limited)	9
10 .. 4 ..	5 ..	5 ..	Ditto, New	67s. 6d.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them, and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.
Post Office Buildings, Striving, Dec. 18.

PROVINCIAL STOCK AND SHARE MARKETS.

MANCHESTER STOCK EXCHANGE.—Messrs. JOSEPH R. and W. P. BAINES, sharebrokers, Queen's Chambers, Market-street (Dec. 18), write—Consequent probably to some extent on the approach of the end of the year, with the usual disinclination to enter into fresh engagements previous to its close, the Share Market here has, with slight exception, shown a lack of animation throughout, this remark applying more especially to actual business in progress than to quotations, the latter being fairly maintained in the majority of cases. Summarising the details to be found below, it may be said that, taking into consideration influences of the period, the tone of the market in miscellaneous securities for the past week has been and is still generally firm.

BANKING CONCERNS have been dealt in only to a very moderate extent, the principal business having been done in Manchester and Liverpool District Bank, Manchester and Salford Bank, and Union Bank of Manchester. Each show a rise of ½, and National Provincial Bank are quoted about 2 lower. With these exceptions quotations are about the same as last reported.

INSURANCE.—Very little business is reported, and no movement worthy of notice has occurred during the week.

GAS AND WATER ANTIQUITIES AND CORPORATION STOCK.—Prices in this class keep steady, but transactions are few. Manchester Corporation 4 per cent. stock has been done a few times at full figures, and the quotation for this stock is ½ higher than last week. It now stands at 103¼ to 104¼, ex the half-year's interest.

COAL, IRON AND STEEL, AND MINING.—It is in these securities that the principal feature presents itself, the movement being with few exceptions advanced, whilst a considerable number of transactions are reported, chiefly at increased quotations. John Browns, which have changed hands several times during the week, have fluctuated somewhat, but now stand ½ higher than at last report. Considerable business has been done in Bolckows of all issues at steadily advancing prices, and compared with last week's prices they are severally higher, as follows:—A (60½ paid), 3½. A (fully paid), 3½; B, 1½; Knowles and Son's Colliery shares have been in demand during the week. To-day business has been done at 3 dis.; they are now 3½ to 2½ dis., as against 4½, 3½ dis. a week ago. The other alterations of moment are higher. Park Gate, 1; Patent Nut and Lock, ½; Tredgar Iron, B, ½; and West Cumberland, ½. Lowe's Barle's Shipbuilding, 1; Sheepbridge Coal and Iron, 1½; Ebbw Vale Steel and Iron, ½; and Cammells, ½. A solitary transaction is reported here in Panulicillo Copper at 4½, and also one in Ashbury Railway Carriage and Iron at 36.

COTTON SPINNING AND MANUFACTURING.—The market for these shares is, on the whole, much quieter, and though sellers continue to ask, and, in some cases, stand out for full prices, buyers are not so plentiful as of late, except at reduced rates, and though it can hardly be said that values are generally much lower, a decided impression seems to be evinced to secure the advantage of the late advance, and under the impression that the results of stocktaking at the end of the year will hardly be so favourable as the late rise in prices tends to show has been expected. Nevertheless, purchasers for investment do not show much desire to sell, as it is believed that the ensuing year will be productive of dividends from this class of undertaking.

MISCELLANEOUS.—Operations in miscellaneous shares are of a desultory character, and the movements are necessarily ruled by influences peculiar to individual concerns. London and Manchester Plate Glass, and Union Plate Glass are quoted ¼ and ½ higher respectively, the former being strong at the quotations. Southern Tramways are also slightly higher. Manchester Carriage, Rylands and Sons, and J. P. Westhead and Co. continue without material alteration.

RAILWAYS.—The traffic returns published during the week, with the exception of London (23,139, increase) and British (1463, decrease) have been unsatisfactory, and those, together with the influences of the money market mentioned last week, have adversely affected railway stocks, but the chief cause of the decline is the news from Afghanistan. There appears to be a clearing out of weak operators for the rise, and no disposition to hold stocks over the Christmas holidays, the result being that rates generally are quoted at a considerable reduction on the week. A decided fall took place this morning on news of interruption of communication with Cabul. At noon a rally occurred on tidings of its restoration, but at the close prices were only about ¼ to ½ above the lowest points touched.

NEWCASTLE-ON-TYNE STOCK EXCHANGE.—Messrs. SPENCE and IRWIN, stockbrokers (Dec 18), write:—Our local market has been quieter, in consequence, no doubt, of the late great rise in prices, and the approach of the holidays. The principal business has been in Consett Spanish Ore shares and Consett Iron, the latter of which companies is pushing forward the re-opening of its collieries as fast as possible, owing to their large orders for iron. Trade reports generally from this district continue to improve subject, of course, to the closing of the Baltic and other ports by ice. The proposed schemes for the reconstruction of the Skerrie Iron Company and Hopkins, Gilkes, and Co. have not improved the market prices of the shares, but rather the contrary, owing to some misapprehension of the details. Efforts are being made to resuscitate some of the other concerns which had to succumb lately. Bede Metals have been very quiet this week, but are now a shade better—1½ to 1 dis. Consett Irons seem for the present to be at their top price, as the great rise is bringing a quantity of shares on the market. An odd lot have been done to-day at 15½ prem., but the price is about 16 prem. A large number of Consett Spanish Ore have changed hands this week at 30s. 6d., being an advance of 1s. per share on last week's prices; price now 30s. to 30s. 6d. Darlington Irons are easier, being freely offered at 9 dis., whilst 9½ dis. is the best bid. J. Abbot and Co. shares are enquired for at 15 dis.—no sellers. Skerrie Irons are lower, being offered at 4s. without tempting buyers. The improvement in the West Cumberland Iron and Steel Company's shares still continues. Large buyers at 5 dis., and few sellers at 4½ dis. Dubby Syke Mine are enquired for at 8s. for 17s. 6d. paid, and 8s. 6d. for 20s. paid, without tempting sellers.—Green Hurth Mine: A marked improvement has taken place

In the price of these shares, although reports from the mine are not quite so favourable—5½ is bid without tempting sellers.—Teesdale Mine: In face of the late persistent buying at 6s. 6d. for ordinary, and 7s. for preference shares, sellers raised their limits to 3s. and 10s. respectively, but buyers, not having followed the advance, no business has been done this week.

Messrs. J. S. CHALLONER and SON, stock and share brokers (Dec. 18) write: Local markets are, on the whole, rather firm this week. Green Hurl shares have improved to 5½, and Teesdale have been done at 9s., but are now sellers at that. Dubby Syke shares are 8s., buyers. Hexham and Edmondbyres have been done at par. Allen Bross have improved 10s., and are now buyers at 2½; Bolckow, Vaughan shares have all improved; we have done the 1000. paid shares to-day at 130 and 130½; the 600. shares are 19½ and 19½ prem., and B shares 40½ to 40½; preference are offered at par. Consett Iron are 15½ to 16 prem., after having been done at 16 prem. Consett Spanish Ore shares have improved 2s. per share to 30s. 6d. Darlington Iron are much about the same—9½ to 9½ dis. John Abbotts are 15 dis., buyers and no sellers. Langdales have been done at 5½, and Lawe's at 5½. Newcastle Chemicals are lower at 5½ to 5½ dis. North-Eastern Bank shares rather better, and have been done at 1½ dis. Palmer, A. shares keep firm at 23½, and B shares at 8 dis. Skerne Iron are a shade lower at 4, and Hopkin's at 2, sellers. West Cumberland no change, price being 5 to 4½ ex div.

CORNISH MINE SHARE MARKET.—Mr. JOHN CARTER, Camborne (Dec. 18), writes:—In consequence of the fall of 2s. in the Tin Standards on the 15th inst., and the approach of the holidays, business has been restricted in the Cornish mine share market during the week, and prices are a little lower generally. The settling has passed off satisfactorily. Prices at Four o'clock to-day:—Blue Hills, ½ to ½; Carn Brea, 54 to 56; Cook's Kitchen, 3 to 3½; Dolcoath, 51 to 52; East Pool, 21 to 21½; Killifreth, ¾ to ¾; Mellanear, 4½ to 4½; New Cook's Kitchen, 4 to 5; Penhall, 1½ to 1½; South Condurrow, 12 to 13; South Crofty, 5½ to 6½; South Frances, 9½ to 9½; Tincroft, 15½ to 16; West Basset, 10½ to 11; West Frances, 11 to 12; West Peavor, 6 to 6½; West Seton, 44 to 46; West Tolgus, 24 to 26; Wheal Agar, 6½ to 6½; Wheal Basset, 2½ to 2½; Wheal Grenville, 4½ to 5; Wheal Jane, 4 to 4½; Wheal Kitty, 2½ to 2½; Wheal Peavor, 19½ to 20; Wheal Sisters, 15 to 17½; Wheal Uny, 1 to 1½.

—Mr. J. H. REYNOLDS, Redruth (Dec. 18), writes:—The Cornish mine share market has been quiet during the week, and prices ruling lower in sympathy with the dullness now prevailing in the metal market. The following are the closing prices:—Carn Brea, 54 to 56; Cook's Kitchen, 3½ to 3½; Dolcoath, 51½ to 52½; East Caradon, 2½ to 3; East Lovell, 2 to 2½; East Pool, 21 to 21½; Herodsfoot, 3½ to 3½; Killifreth, ¾ to ¾; Marke Valley, 1½ to 1½; Mellanear, 4½ to 4½; New Cook's Kitchen, 4 to 5; North Busy, 3 to 4; North Levant, 4½ to 4½; North Penstruthal, ¾ to 1; Phenix, 4 to 5; South Caradon, 7½ to 8½; South Condurrow, 12 to 13; South Crofty, 5½ to 6½; South Frances, 9½ to 10; Tincroft, 15½ to 16; West Basset, 10½ to 11½; West Chiverton, 2½ to 3; West Frances, 11½ to 12; West Peavor, 5½ to 6½; West Tolgus, 24 to 26; West Seton, 44 to 46; Wheal Agar, 6½ to 6½; Wheal Basset, 2½ to 2½; Wheal Grenville, 3 to 4; Wheal Grenville, 4½ to 5; Wheal Jane, 4½ to 4½; Wheal Peavor, 19 to 20; Wheal Kitty (St. Agnes), 2½ to 3; Wheal Sisters, 15½ to 17½; Wheal Uny, 1 to 1½.

—Mr. M. W. BAWDEN, Liskeard (Dec. 18), writes:—The mining market during the week has been characterized by the usual amount of dullness which is prevalent at this season of the year, while a further reduction of 2½ in the tin standard has given an additional impetus in depreciating the value of most tin stock. Subjoined are this afternoon's closing prices:—Bedford United, ½ to ¾; Carn Brea, 53 to 54; Clitters, 1½ to 2; Cook's Kitchen, 3½ to 3½; Dolcoath, 51 to 52; Devon Consols, 6½ to 6½; East Caradon, 2½ to 2½; East Pool, 20 to 20½; Gawton, ½ to ½; Glasgow Caradon, 1½ to 1½; Herodsfoot, 3 to 3½; Hingston Down, ½ to ½; Marke Valley, 1½ to 1½; Phenix, 5½ to 5½; South Caradon, 7½ to 7½; South Condurrow, 12 to 12½; South Crofty, 6½ to 7; South Frances, 9½ to 9½; Tincroft, 15½ to 15½; West Basset, 10½ to 10½; West Chiverton, 2½ to 3; West Frances, 10½ to 11; West Mary Ann, ¾ to 1; Wheal Crebor, 7½ to 7½; Wheal Kitty, 2½ to 2½; Wheal Peavor, 18½ to 19; Wheal Uny, 1½ to 1½.

STOCK EXCHANGE YEAR BOOK.—The sixth annual edition of Mr. Thomas Skinner's Stock Exchange Year Book—that for 1880—has just been issued, and appears to have been carefully and thoroughly corrected until the present date. By way of preface Mr. Skinner gives an interesting outline of the failures and commercial excitements of the year, and after tracing the casualties from the stoppage of the Helston Bank, and the making of the 22500. per share call upon the contributors to the City of Glasgow Bank, to the failure of the York Bank, and two or three well-known local iron companies, he remarks that this may be said to close the period which the City of Glasgow Bank failure commenced. Since then resuscitation and recovery have been prominent, and are especially so now. The liquidation of the suspended banks have been well advanced: the Caledonian Bank is again in business, and in Bristol and Cornwall new companies have been established on the remains of those which failed, and at present, in spite of a most disastrous agricultural season, we are in the midst of a revival of trade so substantial and wide spread that the recent trials seem to be in a fair way of soon being forgotten. The Stock Exchange Year Book, which is published by Messrs. Cassell, Petter, and Galpin, contains full details of Government stocks, including home, colonial, and foreign railways, banks, insurance, gas and water, and mining companies, iron, coal, and steel companies, land, investment, finance, and discount companies, tramways, omnibus, dock, canal, shipping, rolling-stock, and miscellaneous companies, whilst an excellent index permits of instantaneous reference to any of them. The Year Book is worthy of a place in every dealer's or investor's office, and will save an amount of time which will quickly compensate for its cost.

COLLIERY MANAGERS ALMANAC AND DIARY.—For some years past the very useful calendar and diary edited by Mr. W. Fairley, M.E., and bearing this title (London: Hutchings, Hutton-street, Whitefriars), has been largely adopted by the class for whom it is specially prepared, and the edition just issued—that for 1880—is in every respect equal to its predecessors. The calendar, in addition to the usual matter, contains notices of the dates of the births and deaths of the principal men connected with mining and engineering, and in whom, therefore, the readers are most likely to feel interest; the dates of the great colliery accidents, and in most cases the number of lives lost by them; the dates of the introductions of great inventions; and various other interesting facts. The names of the mine inspectors and secretaries to the Board of Examination are given, and there is an excellent diary and cash account, a week to the opening, which will be found very useful. The printed matter, tables, &c., which in the earlier editions formed part of the volume, are now, except in the cheap edition, printed separately, so that whilst the portion required for constant reference and use can be carried in the pocket the remainder can be kept in the desk.

COLLIERY MANAGERS POCKET BOOK.—The amount of information contained in this volume has already been referred to in the *Mining Journal*, so that it is scarcely necessary to do more than mention that the corrections in what may be termed the historical matter have been brought down to the latest date. The Colliery Managers Pocket Book (London: Hutchings, Hutton-street, Whitefriars) is complete in itself, and may be usefully studied by those who deem the diary and calendar which accompanies it unnecessary. It contains various rules and tables connected with the composition, specific gravity, and calorific power of coal; produce of coal seams; sinking and mining notes; ventilation; safety-lamps; barometer; thermometer; water gauge; heat; surveying and engineering; steam and steam-engines; water in pipes and wells; labouring forces; strength of materials; specific gravity; weight and properties of materials; and chemical and useful memoranda. The volume is one from which much may be learned.

LETTS'S DIARIES.—The useful volumes bearing this title have been so long before the public that the question which usually arises at this time of the year is not whether a Letts's diary shall be obtained, but whether amongst the almost innumerable forms in which they are published either is better suited to the requirements of one's particular business than that used the previous year. The Registered Tablet Diary and Blotting Pad will probably be most useful on the writing table, whilst the Rough Diary or Scribbling Journal is well adapted for those requiring a cheap and serviceable diary proper. This diary is made in two shapes, foolscap and quarto, to suit the different tastes. Of ordinary business forms No. 9 and No. 46 are both convenient sizes, whilst for the pocket No. 13 and No. 29 are well suited for hard use, and No. 22 or No. 61 put up in pocketbook form will be found good enough for the most fastidious. In addition to the Diaries, Messrs. Letts also issue an excellent Family Washing Book, containing blank cheque and counterfoil for one year's use; several useful recipes for removing stains, hints for getting up fine linen, suggestions for home laundries, and other useful information; and last, though not least, they have this year issued a Registered File Box, which will facilitate the orderly arrangement of letters or accounts. With such a series of what may be called Domestic Registers the difficulty of determining what has been done and what there is to do will be removed; and, as the result will often be the prevention of loss of temper, it is not improbable that the volumes will add to the comforts of home. In one form or other they should be in every household and in every office.

West Polgooth Tin Mining Company

STICKER, NEAR ST. AUSTELL, CORNWALL.

On land belonging to C. H. T. HAWKEN, Esq., Trewithan, Cornwall.

To be divided into 6000 Parts or Shares of £1 each.

5s. on application, 5s. on allotment, subsequent calls as may be required at intervals of three months.

Cost Book System, with monthly audit by a Public Accountant.

PURSER—Mr. F. E. YOUNG, 13, Queen-street, Exeter.

MANAGER—Capt. THOMAS WASLEY, late Manager of West Polgooth and other Mines.

AUDITOR—Mr. R. SOUTHCOTT, Post Office-street, Exeter, Public Accountant.

BANKERS—To be appointed.

PROSPECTUS.

This company is formed to work a piece of almost virgin ground (lying exactly to the south of and adjoining the Old Polgooth Mines), through the entire length of which run the main trunk lodes of the district known as the Great Polgooth and Hewas.

It is intended to erect a small rotary engine and other suitable machinery for pumping, stamping, &c.

It is intended, however, in the first instance, to confine attention to those lodes which have paid such enormous profits, both shallow and in depth, in Hewas and Old Polgooth.

It is believed there is no such piece of comparatively unwrought ground to be had in Cornwall.

The Old Polgooth raised over £3,000,000 worth of tin, and paid £1,000,000 in dividends, while Wheal Hewas raised an enormous quantity of tin and nickel, and paid some hundreds of thousands of pounds profit to the adventurers.

The geological conditions are all that could possibly be desired. The killas through which the lodes pass is of the same congenial character that proved so productive in the parallel lodes adjoining. A large elvan course passes to the south, through the whole length of the set, and intersected by three caunter lodes of great promise.

All the machinery required is a small engine for pumping, stamping, and dressing appliances, when good returns of tin ores can be sent to the market in about three months after the commencement of the works, and from the present low price of machinery and materials, this is an exceptionally favourable time for starting such an undertaking. There is a certain prospect of a good rise in value of tin.

The proceeds of the first call will erect all the necessary machinery, and carry on the mine for 12 months, after which it is confidently believed the amount, to

be raised by calls not exceeding 2s. 6d. per share, at intervals of not less than three months, will open a lasting and profitable mine.

There will be no other call than the first required until the machinery is erected. There is very little doubt that before this time the mine will pay cost, and the shares will command a very substantial premium.

This company is started for the purpose of legitimate mining. A stipulated sum is to be paid to the vendors for the grants and previous disbursements. The vendors of the property having agreed to take in payment the sum of 10000. in cash, payable in two equal instalments, and 1500 fully paid shares.

Special attention is called to the feature in the financial management which provides for a monthly audit by a public accountant, to whom the books of the mine will be at all times open.

This extensive set is held under lease from C. H. T. Hawken, Esq., for a term of 21 years at a rent of £20 per annum, merging into dues of 1-15th.

A considerable number of shares have been allotted privately. Early application is requested, which should be addressed to:—

The Purser—Mr. F. E. YOUNG, 13, Queen Street, Exeter.

Capt. THOMAS WASLEY, Chacewater, Cornwall.

Mr. WILLIAM BRAY, Chacewater, Cornwall.

Mr. HURFORD, Taff Vale Railway, Cowbridge, South Wales.

All cheques should be made payable to "The Purser of Polgooth Mine," and crossed "National Provincial Bank of England," Exeter.

Copies of reports from THOMAS J. BEWICK, Esq., M.E., 4, Broad Sanctuary, London, S.W.; Capt. FRANCIS THOMAS, Par, Cornwall; Capt. JAMES TREDINICK, St. Agnes, Cornwall; Capt. JOHN EDWARDS, late Manager of "The St. Stephens Tin Mines," St. Stephens, Cornwall; Capt. M. WASLEY, St. Agnes, Cornwall, can be had on application.

It is proposed to CLOSE THE LIST on DECEMBER 31st, immediately after which date the First General Meeting of Shareholders will be held, and a committee of management appointed, of which due notice will be given.

Bell Vean Tin and Copper Mining Company, Limited.

Incorporated under the Companies Acts, whereby the liability of shareholders is limited to the amount of their shares.

Capital £24,000, in 12,000 Shares of £2 each.

5s. per share payable on application, 5s. on allotment, and the remainder, if required, by instalments not exceeding 5s. per share at intervals of not less than three months.

DIRECTORS.

WILLIAM HUDSPITH, Esq., Greencroft, Haltwhistle, Northumberland.

HENRY PRITCHARD, Esq., 13, Belgrave-terrace, Newcastle-on-Tyne.

JONATHAN WALTON, Esq., Doncks Villa, Alston, Cumberland.

ROBERT CRAWFORD, Esq., 102, Renfield-street, Glasgow.

WILLIAM BURNS, Esq., Nettlethirst, Beith, Ayrshire.

BANKERS.

CUMBERLAND UNION BANKING COMPANY (LIMITED), Carlisle and Branches.

WEST CORNWALL BANK, Redruth.

AUDITORS.

Messrs. GILLESPIE, HOLMES, SPENCE, and CO., Newcastle-on-Tyne.

SECRETARY—Mr. DAVID BURNS.

OFFICES—BROOKSIDE, HALTWHISTLE, By Carlisle.

ABRIDGED PROSPECTUS.

This company is formed for the purpose of purchasing, working, and more extensively developing the Bell Vean Tin and Copper Mine, situated in the parish of Gwennap, Cornwall, and for the other purposes mentioned in the Memorandum of Association.

The only existing contract entered into by the company bears date the 2nd day of June, and is made between Thomas Parkyn, David Burns, Jacob Walton, Robert L. Barr, and John M. Clark (who have been working the mine as a Cost-book Company) of the one part and the Bell Vean Tin and Copper Mining Company (Limited) of the other part, being the contract for the purchase of the said mine, with all the plant, machinery, and materials thereon. It has been duly registered, and a copy thereof may be inspected at the offices of the company.

The purchase price is £1000 in cash, to be paid out of the net profits, and not otherwise except at the option of the company or the directors, and 5500 fully-paid up shares (one-half of which are not to be transferred until 2500 other shares shall have been subscribed for and allotted), leaving £12,000 to equip and fully develop the mine.

The lease is for 21 years, dating from the 24th July, 1876; dues, 1-18th. This sett is just north of the celebrated Tresavean lode, which returned one million in profits, and its lodes, including the

Penstruthal great copper lode, are in the same geological position as the richest part of it. It is drained to a depth of 40 fathoms by the Tresavean adit, and a cross-cut is being driven from this adit to intersect Gobbin's lode, formerly worked from surface, and reported to be standing, worth £30 to £40 per fathom at the present price of tin. This cross-cut is within a short distance of the lode, so that a discovery affecting the value of shares may be made shortly.

Prospectuses, with reports, plan, and form of application for shares may be had at the offices of the company.

Capt. JOHN GILBERT, of West Wheal Tolgus, in a recent report, thus epitomises the favourable position of the sett:—"I consider that there is a very great probability that, as in the other rich mines in the district, the Penstruthal copper lode will be found to produce good deposits of copper ore dipping east, and extending under the overlapping killas, and these lodes and branches that I have already described will drop into this lode in depth and act as feeders, and probably very much enhance its productivity."

Capt. JAMES NICHOLAS, of West Basset Mine, says of Gobbin's lode:—"The lode now standing in Gobbin's shaft is worth, as tested by the late manager, 13 cwt. of tin to the fathom, or at the present price for tin £30 per fathom."

NEW SURVEYING INSTRUMENT.

The importance of relative accuracy in rough reconnaissance surveys is generally recognised by men of business who interest themselves in the development of new districts; and there can be little doubt that the professional man's reputation is to a great extent dependent upon his ability to generalise rapidly, and to make a fairly accurate survey where the use of delicate instruments and refined methods is out of the question. In the case of prospecting for mines this rough-and-ready accuracy is especially valuable—as, for instance, when a well-defined and pretty regular lode is being wrought, and it is desired to secure a location upon it, but upon land which is not so situated that a direct sight can be got; and Prof. H. S. MUNROE, of Columbia College, New York, in an interesting paper on the Pedometer as a Surveying Instrument, published in and now reprinted from the (Columbia College) School of Mines Quarterly, explains in detail the instrument used, and the best mode of using it. Prof. Munroe remarks that engineers and surveyors are frequently called upon to make rough reconnaissance surveys where time, money, or the purpose of the work do not permit the use of accurate instruments or refined methods, such as the preliminary reconnaissances of a railroad engineer in determining the location of his road, the work of a mining engineer in tracing outcrops, determining the thickness of inclined rock beds, the limits of a coal basin, or the area of a deposit.

Pacing, as Prof. Munroe says, is by far the most convenient and rapid method for the measurement of distances in such surveys, and with care and skill a reasonable degree of accuracy, amply sufficient for most purposes, may be attained. Prof. Munroe had the opportunity some years ago of determining the errors of some 30 miles of paced lines over a very rough and hilly country, the work of five assistants, with but one month's experience in surveying. The average error was less than 2 per cent., and only in rare instances did it exceed 5 per cent. of the actual distance. He explains that the tendency of rough or heavy ground or long grass is to shorten the natural pace, while to obtain horizontal measurement in pacing up and down hill, a pace somewhat longer than the natural one must be taken. To secure a uniform length of pace under all conditions, the

writer, in common with many other engineers, prefers to take an artificial pace, somewhat shorter than the natural one, which can be lengthened somewhat in going uphill without undue effort. By pacing over measured distance on level and smooth ground, through high grass, up and down hill, &c., the surveyor can accustom himself to the additional effort necessary in going up hill or through tall grass, and determine about how much it is necessary to "hold back" in going down hill or in pacing over level and smooth ground. That the acquirement of such an artificial pace is not a difficult matter is proved by an experiment made a few days before reading the paper with a class of about 20 students. After an hour's practice in pacing down distances each man was required to determine, with the use of his recently-acquired artificial pace, an unknown distance on a moderately steep slope; the average error was but 2½ per cent. In the case of more than half the class the error was less than 2 per cent., and in three instances only did the error exceed 5 per cent. of the actual distance.

But perhaps the greatest objection hitherto to this method of measurement is the brain fatigue resulting from the attention necessary and the monotony of the work, great effort being necessary to avoid mistakes, the gaining or losing of 100 paces, perhaps, or even the total loss of the count, making it necessary to retrace one's steps. Hence a mechanical means of counting paces is much to be desired, since it permits the surveyor to turn his attention to the topographical or geological features of the vicinity, and relieves him from the irksome and unprofitable work of counting his steps. Most forms of pedometers are mere toys, which soon become worn out and worthless, but it appears that Tiffany's American pedometer, invented by Mr. Benjamin S. Church, engineer of the Croton Aqueduct Department, has been specially arranged for the purpose: it is simple in construction, durable, and adjustable to any length of pace. So far as Prof. Munroe has tested its working it appears to be accurate, and to record each pace with precision. As now made, however, it records no distance less than a quarter of a mile; its application in surveying, therefore, is confined to measurement of long distances, where no great accuracy is required, as in case the pointer stands between the

graduations the error of estimating smaller fractions of miles will be not less than 15 or 20 rods. Fortunately the instrument admits, by very simple modifications, of being adjusted to mark either single paces or to read feet directly as may be desired. The accuracy of measurements by paces, and the apparent precision of this pedometer as a means of recording paces, seems to warrant the change.

The new pedometer consists of a hammer of irregular shape cut from sheet brass, pivoted at one end, and supported by a delicate spring. This hammer, by the inertia due to its weight, receives an up and down motion with the rising and falling of the body at each step. The spring supporting the hammer may be adjusted to a light or heavy step by moving the arm held by a set screw shown at its lower end. In case the pedometer when held to the ear is found to fail to record every step taken, or on the other hand, while recording every step, gives a double beat occasionally, the difficulty can generally be obviated by giving more or less tension to the spring. The up and down motion of the hammer is communicated by the pallets to a star wheel, somewhat after the manner of the escapement of a clock or watch. This star wheel has 22 teeth, and, therefore, makes 1 revolution for every 22 paper dial over the other, an instrument of the ordinary pattern can be converted into one indicating paces, feet, and thousand feet. The dial has been graduated for any length of pace, from 28 to 36 in., and the concentric circles used in construction have been retained to allow of greater accuracy in setting the pointers. The graduations for the differential index read from left to right, the smaller divisions indicating 1000 ft. The graduations for the fixed pointer read from right to left, while for this pointer the small divisions indicate 10 ft. instead of 1000. If the stationary pointer be set again at zero each time it reaches the 500 ft. line, distances up to 50,000 ft. can be measured accurately to 10 ft. by reading from both pointers.

An adjustable pointer may be fastened to a stem, passing through a hole drilled in the glass face of the pedometer, and having outside a milled head for convenience in setting it at zero at the beginning of each course; or this pointer may be replaced by a mark or scratch on the crystal, care being taken to have the mark over the circle on the dial corresponding to the pace of the owner. In taking the pedometer from the pocket it will be found that the hammer will record one or more paces in the operation; the same thing will happen on returning the instrument to the pocket. It will, perhaps, be best on this account to wear the pedometer outside, hooked in one of the button holes of the vest or coat, or it may be carried in the pocket if taken out while walking, in which case it will probably not record more than the number of paces taken. Other precautions will suggest themselves to the surveyor, such as turning the pedometer over or on its side, in making detours or pacing off-sets, but these need not here be particularised.

Meetings of Public Companies.

THE RAVENSCLEIFF MINING COMPANY.

An ordinary general meeting of shareholders was held at the Guildhall Tavern on Tuesday.—Mr. F. P. WARD in the chair.

Mr. C. GRAINGER (the secretary) read the notice calling the meeting. The report and accounts were taken as read.

The CHAIRMAN said that at the meeting which was held about twelve months ago the directors were in the full expectation of the receipt of news from the other side of a satisfactory crushing, and they then undertook to give the shareholders the result of that crushing without delay, but partly owing to the bad weather which prevailed in New Zealand, and more particularly in consequence of the imprudence of the contractor, who was to build up the breast-work, delays occurred, and the directors did not receive the result of the crushing until the end of July. This information was at once sent round to the shareholders, and he had no doubt that they, as well as the directors, were not satisfied with the outcome. It was certainly very much less than they had expected, and then the indications opened to them had led them to anticipate. It would be remembered that when the property was in the hands of the previous workers they succeeded in getting good returns of gold from different parts of the mine, and all the analyses of the ore made during the company's workings justified the expectation of a considerable outcome. Visible gold was there in considerable quantity, and even in the quartz in which no gold was seen there was a large amount of gold, and every letter from Mr. Turner, their superintendent at the mine out there, justified the anticipation that when the crushing of the ore from the mine took place a satisfactory result would be obtained. It would be seen from the second paragraph in the report that the directors had given a series of extracts from Mr. Turner's letters, ranging from May 28 to October 4, all running on the same lines. They had a second crushing, but this showed a less favourable result, and as the shareholders would have seen, Mr. Turner said—"Although I have never committed myself to any particular yield I anticipated quite 1½ oz. to the ton put through." Mr. Turner did not believe, nor did the directors, that the yield given was a sure and proper result of what the crushing should have been. The only thing which the directors could think was that the gold might have been coated with sulphur or in some other way, so as to prevent its proper extraction by quicksilver, and everybody connected with gold mining knew how frequently such disappointments as this would occur. It required proper examination and skilled advice and experiments to determine what the true cause of such a disappointing result was. Mr. Turner, in New Zealand, had sent a portion of the tailings to Dr. Hector, the Government geologist, who had previously made analyses for the company, and had reported favourably upon the quartz; but Dr. Hector happened to be at the Sydney Exhibition, and the results of an analysis had not yet been received, but the directors were expecting the information daily. Their conclusion was that the gold was in the tailings—they could not account for the result in any other way. Mr. Turner had sent over 2 cwt. of tailings to this side, and the directors would ascertain whether gold was in the tailings, and they would take competent advice as to the best means of extracting it. Subsequent to the formation of the company Mr. Turner obtained a neighbouring piece of promising land—about 16 acres in extent—which was supposed to contain a considerable quantity of gold, and after that the directors obtained a second block of 16 acres. One of these blocks was contiguous to their own workings, and could be worked from them; and the other could either be worked from them, at greater inconvenience and expense, or it might be worked separately. These matters were under the directors' consideration, and they would decide what was best to be done under the circumstances. Another feature was the Durvye Copper Mine, which this company bought from the York Peninsula Mining Company. This property had lately materially increased in value, and it would be for the shareholders to decide at some future time whether they would work it or not. It could be developed at considerably greater advantage now than when they purchased it. The ore in it was very suitable for treatment by modern appliances. The directors very much regretted the retirement of their colleague, Mr. George Smith, owing to ill-health. Mr. Smith's doctor insisted on his retirement from some of his engagements; but he had the fullest confidence in the board, and retained the whole of his large interest in the company. As stated in the report, neither the board, the auditors, the secretary, nor the accountant of the company had taken anything for their services, and everything had been done on the most economical basis possible. Indeed, he did not know a company that had been started with such a small rate of expense, and the shareholders had this additional guarantee that everything would be done as economically as possible—in the fact that the directors were the largest shareholders in the company. (Cheers.) In conclusion, the Chairman moved the adoption of the report and accounts.

Mr. R. B. OTTELEY seconded the resolution, which was put and carried. Mr. John Darlington, M.E., the retiring director, was re-elected, and the CHAIRMAN having drawn attention to some specimens of quartz very rich in gold recently received from the company's mine, the meeting terminated.

CANADIAN COPPER AND SULPHUR COMPANY.

The ordinary annual general meeting of shareholders was held at the Cannon-street Hotel, on Thursday.

The CHAIRMAN said the proceedings to-day would be of somewhat a formal character. He did not see any of the gentlemen present to-day who attended the meeting at Glasgow, when the old board was superseded. Owing to the proposition that this company should be put into liquidation he, accompanied by another gentleman, went to Glasgow, and prevented what would have been at that time the handing over of the property into the liquidator's hands, out of which the shareholders would have received nothing. During the past year the amount which had been spent on the property was very limited indeed. The property was in this condition, that a portion of it was leased to certain persons who had placed it in repair, instead of the broken condition it was at one time in, and who were making certain experiments with the low quality ore, which would decide the value of the property as far as the low grade ores were concerned. In order that the shareholders might fully understand the matter the directors had laid before them in full the report of the present occasion, except that he might state that a letter, which arrived the previous evening from Capt. Bennetts, gave quite as hopeful a prospect of the future of the company as was contained in his report, appended to the directors' report. He had nothing further to add, but should be happy to afford any further explanation. He moved the adoption of the report and accounts.—The motion having been seconded—

A SHAREHOLDER said it would be acceptable to the meeting if Mr. John Taylor would say a few words with regard to the prospects of the property generally, and also regarding the new process by treating low-grade ores. It would be interesting to the shareholders to know whether it was probable that this company's low-grade ores could be made remunerative by that process? No doubt

Messrs. Taylor would not have taken the property in hand and appointed Capt. Bennetts unless they believed there was some value in it; and as the cost of carrying on operations was now very small the shareholders certainly preferred the step which had been taken to placing the property in the hands of lawyers and liquidators. (Hear, hear.)

Mr. JOHN TAYLOR (Messrs. John Taylor and Sons, Queen-street-place) said that in selecting Capt. Bennetts they had selected a man who had been long known to his firm, and who had shown great skill in the conduct of the mines entrusted to him. Immediately after his firm were appointed managers they asked Captain Bennetts to take charge of the mine. The principal question was whether they should expend more money in exploring the mine of St. Francis, and his suggestion would be that Capt. Bennetts should be instructed to expend a little money in this place, where he had not only discovered ore, but ore of a high quality; and send the ore to Liverpool and have it sold there.

A SHAREHOLDER asked how much money would be required to do what Mr. Taylor suggested?

Mr. JOHN TAYLOR pointed out that the shareholders could limit the expenditure to any amount they liked, but seeing the short time that his firm had had anything to do with the mine, and in the absence of sufficient data, it was impossible for any mining engineer to fix an amount.

The SHAREHOLDER said that he did not wish to have the company committed to a large and unknown liability.

The CHAIRMAN said that the shareholders might be perfectly satisfied that the directors would take every care that the expenditure would be kept within proper bounds.

A SHAREHOLDER asked what percentage of copper was in the ore?—Mr. JOHN TAYLOR, jun., said that the four barrels sent home averaged 22 per cent.

Mr. JOHN TAYLOR, referring to the subject of limiting the expenditure, said that his firm would exercise the same prudence which they had always endeavoured to apply in connection with all properties placed in their hands. More he could not promise, but of course the shareholders could place what limit they liked upon the expenditure. He believed that five or six months would prove a great deal, and they would then know pretty well what the property was likely to do.

In the course of the discussion it transpired that there was a sufficient amount of cash and convertible securities in hand to carry on the company for some time to come, and in the meantime there would be some income from the Hartford Mine, which was being worked by the Oxford Nickel and Copper Company.

The CHAIRMAN said it might be interesting to know that the arrangement with Messrs. Taylor was of a tentative character. Everything would be conducted as economically as possible. He could only say that if the present board had not entertained a fairly good opinion of the property they would not have taken the trouble they had done, and would have had nothing to do with it.

Two or three shareholders having expressed their satisfaction with the brighter prospects of the company, and that they could not do better than leave the matter in the hands of the board and Messrs. Taylor, in whom they had full confidence, the resolution for the adoption of the report and accounts was put and carried.

The retiring directors were re-elected, and 150l. voted them as remuneration. The Auditor was re-elected, and a vote of thanks having been passed to the Chairman and directors, the meeting broke up.

[For remainder of Meetings see this day's Supplement.]

WATSON BROTHERS' MINING CIRCULAR.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The competing policy now going on between the Grand Trunk and the Great Western Railways of Canada reminds us, as far as the shareholders' interests are concerned, of the Kilkenny cats. And it is extraordinary that with lines costing millions of English money, and managed by English directors, some better arrangements cannot be come to. The Grand Trunk, under the presidency of the ablest and most practical railway authority of the day, has always, so far as we understand, been ready to amalgamate and "pool" receipts, so as to do away with the ruinous competition going on; but the Great Western are only willing to "pool" receipts on certain portions of their lines, and in a way that could only cause endless disputes and litigation. In amalgamating entirely the Great Western seem to fear the Grand Trunk would swallow them up, and we should say a very good "swallow" too, if it gave the shareholders in both lines increased interest and a better price for their stocks. There is another view, also, to be taken of the present competition for business and low rates, and that is one which affects the British farmer, who would have no objection to see another 1s. or 2s. per quarter charged on the freights of corn flooding the English markets through these lines.

The rise from No. 3 level at Aberllyn has now been communicated with the winze from No. 2, in a rich blende lode, and this will open out good ground for stoping.

Capt. Kneebone, in his interesting letter on the D'Eresby District in last week's Journal, remarks that the lode in the valley at the Griffin Mine is free from blende and sulphur, and improves as they advance upon it—that is, towards Aberllyn—which "speaks very much," he says, "in favour of Aberllyn and D'Eresby Mountain, when they get deep enough to be below the blende." At No. 5 at D'Eresby Mountain, however, which is in the valley south of the mountain range, just as the Griffin is in the valley to the north, there is no blende whatever. The blende is in the upper levels, but No. 5 is all lead. On the high range between these two valleys points are Aberllyn adjoining Griffin, and D'Eresby Consols adjoining D'Eresby Mountain. In the Griffin Valley we are taking up a level which will come in 30 fms. below the present blende in No. 3, or deep level at Aberllyn.

The agent at Pary's Coporation says that the 90 south has further improved, and he has reasons to believe he will soon enter upon something valuable. There are now ready for sampling 100 tons of copper ore and 50 tons of copper precipitate.

At Morfa Du cross-cut, by the White Rock, there are rich stones of copper ore.

We learn by telegram that the sale of ore at Crebor realised 2307l. 14s. 6d., or 4l. 14s. 6d. per ton on the average. The estimate we made on the 6th was 2300l. This sale gives about 1600l. profit on two months' working.

Operations have been commenced in the deep adit at the Prince of Wales, and a 50 in. engine in treaty for the shaft, and no time will be lost in bringing the mine into returns again.

On the Stock Exchange it is always easy to carry over speculative accounts, but most difficult to do so in the Mining Market, and we never enter into mere speculative transactions ourselves, nor advise others to do so. We do not what is called "bear" shares, and only buy what we can pay for. And this is a rule we would lay down for others. Of course there is a large speculative business going on daily in the "market," and it consists in people selling for "the account" what they have not got, and buying for "the account" what they have not, in many instances, the money to pay for. At each fortnightly settlement these transactions have to be adjusted, and hence arise the fluctuations that puzzle outsiders, but ought not to influence the bona fide holders so long as they have confidence in their mines. To illustrate our meaning, let us suppose five or six people buy up shares in a particular mine, expecting some discovery, or that there will be a rise in price before the "fortnightly account," or the day of settlement. When that time arrives, however, the shares may not have gone up as expected, and as the parties can neither pay for them, get them carried over to the next account, or borrow money upon them, they have to be thrust on the market, and sold at a sacrifice, and the price in a day may be put down pounds or shillings per share, as the case may be, solely owing to mere gambling transactions.

SATURDAY, DEC. 13.—Market very dull, and prices almost nominal. Van, 23 to 25; Great Laxey, 18 to 19; South Darren, 3 to 3½; Leadhills, 4½ to 4¾; Herodfoot, 2½ to 3; Carn Brea, 53 to 55; Dolcoath, 52 to 54; South Condurow, 12 to 13; South Frances, 10 to 10½; Peavor, 19½ to 20½; West Frances, 11 to 12; West Basset, 11 to 12; Tincroft, 15½ to 16½; Crebor, 7½ to 7¾; Parys Copper, 17½ to 19½; Prince of Wales, 10s. to 15s.; Glenroy Lead, 17s. 6d. to 20s.; Roman Gravel, 12½ to 12¾; Devon Great Consols, 6 to 6½.

MONDAY, DEC. 15.—Market more active, and the following are quotations for the day:—Carn Brea, 53 to 55; Dolcoath, 52 to 54; Cook's Kitchen, 3 to 3½; Devon Great Consols, 6 to 6½; East Caradon, 2½ to 3½; East Laxey, 1½ to 2; East Pool, 20 to 22; East Van, 2½ to 3; Glenroy Lead, 17s. to 19½; Great Laxey, 18 to 18½; Grogwinion, 3½ to 3¾; South Condurow, 12 to 13; Herodfoot, 2½ to 3; Hingston Down, 7s. 6d. to 12s. 6d.; Leadhills, 4½ to 5¾; Mellanear, 4½ to 4¾; Marke Valley, 30s. to 35s.; Parys Copper, 18s. to 20s.; Pateley Bridge, 15s. to 17s. 6d.; East Crebor, 1½ to 1¾; Prince of Wales, 10s. to 15s.; Roman Gravel, 12½ to 12¾, ex. div.; South Caradon, 7s. to 8s.; South Darren, 3 to 3½; South Frances, 10 to 10½; Tankerville, 5½ to 6; Tincroft, 15½ to 16½; Van, 23½ to 24½; West Assheton, 3½ to 3¾; West Basset, 11 to 12;

West Chiverton, 2½ to 3; West Frances, 11 to 12; West Seton, 45 to 47½; West Tolgus, 24 to 26; West Wye Valley, 15s. to 25s.; Agrar, 6 to 6½; Wheal Bassett, 2½ to 3; Crebor, 7½ to 7¾; Grenville, 4½ to 5; Peavor, 19½ to 20½; Cape Copper, 33½ to 34½; Don Pedro, 14s. 6d. to 16s. 6d.; Richmond, 9½ to 9¾.

TUESDAY, DEC. 16.—Market quiet, and prices about the same as yesterday.

WEDNESDAY, DEC. 17.—Market moderately active. Van, 23½ to 24½; Great Laxey, 18 to 19; Roman Gravel, 12 to 12½; Tankerville, 5½ to 6; Leadhills, 4½ to 4¾; Glenroy Lead, 17s. 6d. to 20s.; South Darren, 3 to 3½; South Frances, 9½ to 10; Tincroft, 15½ to 16½; Dolcoath, 52 to 54; Carn Brea, 52 to 54; Peavor, 18½ to 19½; Crebor, 7 to 7½; Devon Great Consols, 6 to 6½; Parys Copper, 18s. to 21s.; East Van, 2½ to 2¾; East Caradon, 2½ to 3; East Crebor, 22s. 6d. to 25s.; Grogwinion, 3½ to 3¾; West Assheton, 3½ to 3¾; Prince of Wales, 10s. to 15s.; West Tolgus, 24 to 26; South Caradon, 7s. to 8s.; West Seton, 45 to 47½; Cape Copper, 33 to 34; Don Pedro, 14s. to 16s.; Panullicio Copper, 4½ to 5½; Richmond, 9½ to 10; Santa Barbara, 2 to 2½.

THURSDAY, DEC. 18.—Market for tin shares weaker. Carn Brea, 51 to 53; Dolcoath, 50 to 52½; South Condurow, 11½ to 12½; South Frances, 9½ to 10; Tincroft, 14½ to 15½; West Basset, 10 to 11; West Frances, 11 to 12; Grenville, 4½ to 4¾; Peavor, 18½ to 19½; Crebor, 6½ to 7; Devon Great Consols, 6 to 6½; West Seton, 42½ to 47½; Parys, 18s. to 21s.; Mellanear, 4½ to 4¾; East Caradon, 2½ to 3; South Darren, 2½ to 3; Roman Gravel, 12 to 12½; Van, 23½ to 24½; Tankerville, 5½ to 6; West Assheton, 3½ to 3¾; Marke Valley, 30s. to 35s.; Agrar, 6 to 6½; Cape Copper, 30 to 34; Richmond, 9½ to 9¾.

FRIDAY, DEC. 19.—Market quiet. Tin shares firmer. Dolcoath, 50 to 52½; Carn Brea, 53 to 55; Tincroft, 15 to 16; West Basset, 10½ to 11½; West Frances, 11 to 12; Grenville, 4½ to 5; Peavor, 19 to 19½; South Frances, 9½ to 10; Van, 23½ to 24½; Great Laxey, 18 to 19; Roman Gravel, 12 to 12½; South Darren, 2½ to 3; East Van, 2½ to 2¾; Leadhills, 4½ to 4¾; Herodfoot, 2½ to 3; Parys Copper, 18s. to 21s.; Crebor, 6½ to 7; East Crebor, 20s. to 25s.; Devon Great Consols, 6 to 6½; Prince of Wales, 10s. to 15s.

MR. WILLIAM H. H. WATSON, DEALER in RAILWAY STOCKS AND MINING SHARES at net market prices of the day.

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MANUFACTURE OF INGOTS.

In the ordinary course of manufacture ingots are cast in moulds constructed of iron, and as soon as the molten metal is solidified in the mould it is taken therefrom, and is re-heated for the purpose of being rolled or forged, or the ingot is removed from the mould in which it has been cast, and is operated upon by means and in apparatus differing from those which are the essential features of the invention of Mr. CHARLES SIMMONS, of Sheffield. In the ordinary process of manufacture of ingots it is found that before the interior (central) portion has become solidified the exterior has become too cool to be operated upon by rolling or forging, thus necessitating the operation by reheating. The object of Mr. Simmons' invention is so to manufacture ingots that when the interior (central portion) of the said ingot is so far solidified as to be capable of being operated upon (by rolling or otherwise) the exterior of the said ingot will be of sufficiently high temperature as also to be capable of being operated upon (by rolling or otherwise), the result being that the said ingot can be rolled or forged without being reheated or otherwise treated, as is now ordinarily done.

The improvements consist, firstly, in the construction of an apparatus to contain one or more ordinary or other ingots moulds, in which the molten steel or other metal is cast, and in which said apparatus the said ingot or ingots will remain for the purpose of equalising and preserving the heat thereof, so as to be taken therefrom in such a state as that it or they can be rolled or formed without reheating. The improved apparatus consists of an outer casing or box made of or lined with any suitable material which is a non-conductor of heat, such as fire-clay or ganister, or a mixture of substances which are non-conductors of heat, or so made of metallic or non-metallic substance as that it will be a non-conductor of heat, the said outer casing or box being open at the top or bottom to allow of the insertion of an ordinary or other open-ended or closed-top ingot mould, and being provided with an air-tight cover or top, which is also a non-conductor of heat, and either with or without a bottom casting plate for the mould to stand on. The casing or lining of the casing may be entirely of a permanent character, or a temporary lining of a substance which is a non-conductor of heat may be made each time the apparatus is used.

The ingot mould can be placed in the outer casing or box, and the molten metal be cast or poured therein, and after the said molten steel has become sufficiently solid the mould is withdrawn; the cover of the casing is affixed, thus rendering it air-tight, the ingot being retained therein until its temperature has become sufficiently equal to allow of its being operated upon (by rolling or otherwise). As a modification of the above the mould may first be filled with the molten steel, as is now ordinarily done, the steel allowed to solidify on the sides, the mould withdrawn, and an open-ended casing of the improved construction placed over the ingot to exclude the air, and the ingot retained in this air-tight case until its temperature has become sufficiently equal to allow of its being operated upon by rolling or forging without being reheated. The invention consists, secondly, of a modification of the above, in which mode of manufacture the ingot is cast in an ordinary mould and in the ordinary manner, being then placed in a box casing with an air tight lid or cover of the improved construction, as above specified, and being made to contain one or more ingots, or being made with two or more divisions or cells. As a further modification the improved casings may be so made as that the air contained therein can be exhausted therefrom in any ordinary manner.

MANUFACTURE OF DIAMONDS.—An important communication was made on Wednesday to the members of the Glasgow Philosophical Society by Mr. James Maclear, of the St. Rollox Chemical Works. Mr. Maclear said that on the 12th of the month he sent a note to Mr. Dixon (the secretary) giving certain ascertained results. These were of such a startling nature that he stipulated the note was to be kept sealed until that meeting—until, in fact, he had satisfied himself by all the means in his power, and by more competent opinion, perhaps, than his own, as to the nature of these results. He had submitted the results to Prof. Tyndall and Prof. Smyth, and they were now in the hands of Mr. Maskelyne, of the British Museum. They were briefly these. After a series of careful experiments, extending over a period dating as far back as 1866, he had succeeded in obtaining crystallised forms of carbon. They were perfectly pure and transparent, and had all the refractive power of diamonds. They had the crystalline form of diamonds, and resisted acids, alkalis, and the intense heat of the blow-pipe. They also scratched glass, and the only other tests that remained to be applied were as to whether they could scratch diamonds or be scratched by diamonds, as to the refractive index of the crystals, and also the measurement of the angle of the crystals. These tests had not, as he had said, been carried out, but they would be shortly, and he hoped to put some of the specimens before the society on a future occasion. He had no doubt in his own mind, and neither was there any doubt in the minds of the scientific gentlemen whom he had consulted, that they were diamonds, but in the meantime he preferred to describe them as pure crystalline forms of carbon. The forms he had obtained were in size one thirty-secondth of an inch.

AMERICAN IRON TRADE.—Advice just received from New York state that there has been little change in the tone of the New York pig-iron market. The arrivals of Scotch pig at New York have continued heavy, while the sales effected have been small. No important transactions have been effected in rails at New York. The Philadelphia pig-iron market has been firm, with a rather more active demand. The Philadelphia market has been higher for steel rails, as much as \$70 per ton being offered for early delivery. No large transactions have, however, been reported upon these terms, and the more current quotations are \$65 to \$68 per ton. About 25,000 tons of steel blooms have been placed at Philadelphia at \$46 per ton. The market for iron rails has ruled firm at Philadelphia, and sales have been effected at fully late prices. Orders for 21,000 tons of steel rails are stated to have been received at Pittsburg.

The Rio Tinto Company announce that the funds requisite to meet their Seven per Cent. drawn Bonds and their Five per Cent. and Seven per Cent. Coupons, due Jan. 1, have been lodged at their bankers. They invite holders to present coupons at once.

new engine-shaft, is looking better, now worth 12½ per fathom; the lode is 8 ft. wide. In addition to our usual quantity of tin raising we have to-day sold copper ore estimated worth about 3700.

ROMAN GRAVELS.—Arthur Waters, Dec. 18: There is no material change here in the main points for the last month or two, but taking the ends and slopes together, the mine has not looked better for a long time past. We shall soon be in a position to put down guide-rods and cage in new shaft engine shaft, and we do not think it is very likely that the mine will be worked, when Roman Gravel will be in a position to benefit the company. We have to-day sold 100 tons lead ore for 1302½, 10s.

SOUTH CONDUROW.—W. Rich, W. Williams, H. Abraham, Dec. 18: The lode in the 93, east of King's, is improving, now worth 15½ per fathom. The 80 east is worth 10½ per fathom. The 80 west is worth 9½ per fathom. We have nearly completed the pit at Plantation shaft. The 70 west is worth 7½ per fathom. The 60 west carries a little tin. The 50 east is worth 9½ per fathom. The lode in the back of the 50 east is worth 12½ per fathom. The 40 east has a more promising appearance, and is worth 7½ per fathom.

SOUTH DAREN.—Henry James, Dec. 18: There is no very great change of importance in the underground operations since last report. The lode in the 110 is becoming more compact and defined. The east end is improved, especially in the bottom; present value 13½ per fathom. The west end is in a very strong mixed lode, and worth for lead ore 20½ per fathom. Owing to the 100 end being full of stuff no lode has been taken down here for the week. The same remark applies to the 90 forebrest, being unable to draw stuff on account of severe frost. The slopes and pitches throughout the mine are producing their usual quantities of ore. In consequence of the very severe frost and shortness of water, we have been able to do but little in drawing and dressing.

SOUTH DE ERESBY.—W. Bennetts, Dec. 18: The men are making further progress in driving the engine-shaft below the No. 1 adit level. We have on a full pane of men, so that we hope to reach another level in two months. The lode in the shaft sinking in the bottom of No. 2 adit is looking as well as ever for lead in the hanging side of the lode. There is a great deal more muddle, but this is not a very good sign. The heading part of the lode is still looking well for lead, but the water is getting very quick.

SOUTH TOLCARNE.—Wm. Rich, J. Knotwell, Dec. 18: The ground in the 38 cross-cut south is favourable for driving, and good progress is being made in cross-cutting towards the south lode. The ground is hard in the rise in the back of the 36, but there is a little more water coming from the lode, which is an indication that the lode will soon open out wider.

TANKERVILLE.—A. Waters, Dec. 18: The 220, east of Watson's engine shaft is driven about 18 fms., and in present end there is a large cavity into which you could walk for 2 fms. in length, there being an ore course on either side which are worth together 3 tons of lead ore per fathom. Of course this applies to the portion of the lode seen, but neither of the walls has yet been cut into here. About 6 fms. behind said end we are rising by the side of a cavity lode worth 2 tons per fathom. The three stops in back of said 220 east are worth together 6 tons per fathom. The 220 west is driven 14½ fms., lode 4 ft. wide, worth 1 ton per fathom. We expect another cavity in this end shortly, and with it an improved ore course. The stop in bottom of 206 west is worth 1 ton per fathom. The 206 west is opening out a lode which will pay for stoping. The three stops in back of said level of 206 west are worth together about 5 tons per fathom. The 182 east is driven to the shaft, and lode is yielding good stuff, worth 12 cwt. per fathom. Pump Sump: The lode in present bottom of the sump is worth 25 cwt. of lead ore per fathom. The new shaft is down 12 fms. 4 ft. Tribute department yielding ore as for some time past.

TEESDALE.—J. Slack, Dec. 12: West End Forehead: There has been a little done at this working, but there is no change to report in the quantity of lead ore.—West End Stope, No. 1: This working still continues as good as when last reported. There is extraordinary strong ore still setting up higher than it has ever set up before. We have been full of ore, and ore is being set up in the house than we have ever had from this working.—West End Stope, No. 2: There is a little improvement in this working since my last. We are just getting into the ore with the bottom part of the working that we have been aiming for; another week will get us wholly into it. The dressing is still standing through the frost.

TYN-Y-FRON.—E. Jones, Dec. 16: We are still working in the second stop west, where the lode continues about the same for lead and blende as last reported. Our passes are now getting full, and we shall have shortly to begin to wheel and transport ore.

VAN CONSOLS AND GLYN UNITED.—James Roach, Dec. 17: We are still driving the 50, east of Murray's shaft, on the south side of the lode; here we find solid pieces of blende, carbonate of lime, and small cubes of lead; we shall begin driving in the cross-cut north to prove the value of the ore-bearing part at the expiration of the current month. The 50, west of Murray's ore north, or footwall portion of the lode, is without alteration since the date of my last advice; here we should also cross-cut the lode; the last cross-cut driven exposed new branches of lead traversing the drive longitudinally, which will afford profitable ground for stoping. The lode cut down west, and continuous to the shaft at the 50, is yielding quantities of lead, more than equal to our expectations; this we have now suspended until our new jiggling shaft be completed, which will occupy some few days from this date, and the men are engaged cutting ground some 13 fms. west preparatory to sinking and deepening the mine on the course of the lode, which we believe will still yield lead in greater abundance, and consequently largely enhance the value of the company's property; we have now a great deal of ground laid open for stoping in the roof of this level. The drive of the 50, west of Glyn shaft, has been resumed; we are now in the midst of a hard bar of fritstone. I do not think it is very thick, and believe we should find an improved lode the other side of it. The ground about the cross-course in the deep adit level has been very much deranged, and although quartz in large quantities and specimens of lead have been met with I cannot speak of any well-defined lode being established yet, consequently we have resumed the drive north; progress, &c., I will allude to in my next. Tributaries are working as usual, and getting fair quantities of lead. To-day I have sampled 20 tons of lead, and invited smelters' tenders for same. The machinery is all in good order, and doing our work very satisfactorily.

VAUGHAN.—Dec. 17: The 42, east of engine-shaft, has been extended 4 ft., but no lode has yet been taken down; set to six men to drive for two months, at 8½ per fathom. Richards' winze, under the 30 east, is now down 2 fms. 2 ft., and the part of the lode carried is hard for exploring, composed chiefly of blue clay-slate, beds of grit, carbonate of lime, and stone of blende and lead ore, yielding of the latter 1 ton per fathom; set to six men a stint of 8 fms., to the required depth of the 42, at 11½ per fathom. The 30 east, on the north part of the lode, has been set to two men, to drive at 6½ per fathom, in order to prove if the ore ground discovered by a cross-course may not be found productive in advance of the present end of the drive, and lead ore and blende may be found at a standstill for the past fortnight, but a mild thaw having set in every force is being made towards having a parcel ready for sampling at the end of the year.

WEST GRAVEN MOOR.—D. Williams, Dec. 18: We are making very satisfactory progress in driving Blackhill adit level east upon the vein; the latter is a little wider, also easier to work. The metal pitches throughout the mine are producing ore as for some time past. We sold and delivered the parcel of pig-lead weighed off on the 10th instant, which realised, after deducting royalty, 135s. 17s. 6d.

WEST WHEAL TOLGUS.—Dec. 18: The lode in the 155, west of Taylor's shaft, is 5 ft. wide, and yielding 1 ton of copper ore per fathom; the ground is still very hard, but with the aid of the boring-machine we are enabled to drive about three times as fast as we could in the ordinary way. There is no change in the 145 cross-cut, driving south. The lode in the 135, west of cross-cut, on the south part, is 3 ft. wide, and producing good stones of copper ore. The lode in the 125, driving west of cross-cut, on the south part, is 3½ ft. wide, and yielding 1 ton of ore per fathom. The lode in the 125, driving east of cross-cut, on the south part, is 3 ft. wide, and yielding 1½ ton of ore per fathom. The lode in the winze in the bottom of this level is 3 ft. wide, and yielding 2 tons of ore per fathom. The 100, east of the 125, is producing about their usual quantities of copper ore.—Richard's Shaft: The lode in the 95, west of shaft, is 3½ ft. wide, but split up and disordered by patches of killas. The lode in the 65, west of the cross-course, west of the shaft, is 2½ ft. wide, and still producing very good stones of copper ore. We sampled on Tuesday (computed) 230 tons of copper ore.

WHEAL CREBOR.—John Andrews, Dec. 18: The lode in the 120, east of cross-cut, is worth fully 100½ per fathom. West of cross-cut, at the same level, the lode is worth 80½ per fathom. The lode in the 108 east yields occasional good stones of copper ore and muddle. The stop in the back of the 108 is worth 15½ per fathom. The new lode in the 108, east of cross-cut, is worth from 24 to 30½ per fathom. The new lode in the stop in the back of the 108 is worth 40½ per fathom. The 72 east is poor. No lode has yet been met with in the 48 cross-cut south. We have effected a communication between the new shaft and the 48 by a borer hole, and hope to be in a position in a few days to draw the stuff from that level through the new shaft.

WHEAL UNY.—W. Rich, M. Rogers, Dec. 15: We have repaired the breakage to the whim-engine; the hauling is now going on well. The 172 end east is unproductive; but the ground is easy for driving, and the lode has a kindly appearance. The new lode in the 172, east of cross-cut, is worth from 24 to 30½ per fathom. The 160 west is worth 8½ per fathom. We are putting out a cross-cut north in the 160 east to prove whether there is any more lode standing in that direction. We have also commenced to drive north on the cross-course in the 150, west of Incline shaft. The 130 end, east of King's, yields low quality tinstone.

AUSTRALIAN MINES.

PORT PHILLIP AND COLONIAL (Gold).—Oct. 25: Quantity of quartz crushed on both the companies' and tributaries' accounts for the four weeks ending Oct. 8, 4677 tons; total gold obtained, 1382 ozs. 5 dwts. Receipts, 2318s. 15s. 3d.; payments, 2054s. 18s. 9d.; profit, 761s. 18s. 6d., which added to previous balance made a total of 2047s. 16s. 7d. The amount divided between the two companies was 800s.; the Port Phillip Company's proportion of which is 520s. The balance, 1247s. 16s. 7d., was carried forward to next month's account; remittance, 500s.

SCOTTISH-AUSTRALIAN.—Sydney, Oct. 29: "During the last week in September (work at the colliery during the previous three weeks of that month having been stopped by the strike) 5535 tons of coal were shipped from the Lambton Colliery. During October, up to the 27th of that month, 15,993 tons were shipped."

YORKE PENINSULA.—Kurilla Mine, Oct. 27: The following are extracts from Capt. Anthony's report:—"Kurilla Lode: At the 55, east of Hall's shaft, the lode is divided by a horse; the walls are 9 ft. apart, each having a vein of ore about 1 ft. wide. I am now driving on the north branch, which seems to be the one on which the winze is being sunk, below the 45. I am hopeful that the branches will unite at some point further east, although at present they are parallel. I find both the strata and the lode less regular at the 55 than at the 45, but cannot account for it. I think that the lode will yield just as much ore as at the 45. . . . Morphet's Lode: At the 43 east the lode is comparatively poor, being too far south for the main portion of the lode. I intend driving to the slide (say) 2 fms., and then cross cut the lode northwards. One important object in reaching the slide is to try to drain the winze already partly sunk below the 20. Up to the present end of the drive a good lode has been followed almost without interruption all the way from the shaft—a distance of over 40 fms. I have put through another winze from the 20 to the 30, about 40 fms. east, and a pitch to two men at 6½ per fathom. No noticeable change has taken place in the number of men engaged in stoping, and the yield of ore is uniform. The North Branch or New Lode: This lode differs from the others in the property in the richness of the ore and its want of regularity. As, however, the ore

is yellow coated with black, I am hopeful that at greater depths, and when the regular yellow ore is obtained, we shall witness greater regularity also. I am putting in a cross-cut at the 43 to intersect the lode at that level, but have not yet driven far enough."—Ore Returns: There have been shipped by the Gatehead 202 tons of 17 per cent. ore. On hand at the mine 282 tons of 13½ per cent., 350 tons of smalls at 5 per cent., and 1850 tons of dredge ore of 5 per cent.

ENGLISH-AUSTRALIAN.—Mr. Clark, Fryerstown, Oct. 29: "The 420 ft. Level: We have extended this level 5 ft. since last report, making the total length from the shaft 543 ft. This end will now be kept going until we get to the boundary. The No. 2 rise has been risen 48 ft., making 88 ft. altogether, when we holed to the tributary stopes, so that we have now a direct truck road from the south boundary. We are getting stone at the north end, and putting in two cross-cuts to the west. The stone in the south cross-cut is looking a little better: 225 tons of stone have been crushed during the month, which yielded 33 ozs. 5 dwts. of retorted gold. The race is now completed, and all the men have been put to work below. The water has only been turned on two or three days, and we already find the benefit of it. I shall next month be in a position to report the full cost of the race, and the probable monthly outlay and saving in connection therewith."

FOREIGN MINES.

ST. JOHN DEL REY MINING COMPANY (Limited).—Advices received Dec. 3:—

GENERAL OPERATIONS.			
GOLD EXTRACTED TO DATE.—The produce for the second division of October, a period of nine days, amounts to 9550.7 oits., =1101.0402 ozs. troy. It has been derived as follows:—			
General mineral	6565.3	from 1050	= 6.252
Mineral free from killas	2656.5	" 288	= 8.876
	9221.8	" 1338	= 6.817
Re-treatment (Arrastras Morro Velho)	311.9	"	= 0.234
ditto (Praia)	117.0	"	= 0.087
Total	9550.7	" 1338	= 7.138

MINE.—Return of duty for 13 working days:—
Mineral raised from the mine 2411 tons.
Mineral quarried per borer per diem 1.91 "
Average number of borers daily 97.07
Average number of natives daily 139.92
On the 28th ult. a breakage occurred to the pumping machinery. The repair work occupied three days and four nights, during which time the water rose to the horizon of No. 2 stop.

This temporary suspension of stoping operations in the sump and adjacent sections will not, it is considered, materially affect the produce.
Total rainfall for October 5.33 inches.
Advices received December 15, ex Guadiana (s.), dated Morro Velho, Oct. 18:—
Though the quantity of mineral treated exceeds that for September by 213 tons, the month's produce is less by 727 oitavas. This is accounted for by a decline in yield per ton of 0.630 oitavas, and a breakage of the pumping machinery that occurred on the morning of the 28th.

GOLD PRODUCE FOR THE MONTH OF OCTOBER:—			
	Oits.	Tons.	Oits. per ton
General mineral	22,273.8	from 4047	= 5.503
Mineral free from killas	8,861.3	" 1063	= 8.147
	30,935.1	" 5110	= 6.054
Re-treatment and recovery	1,615.2	"	= 0.318
Total	32,550.3	" 5110	= 6.370

PRAIA.—The small amount of recovery from re-treatment is owing to the use of the Illingworth stamps for the experiment referred to in the report for September. The alterations to the Hockin mill were completed on the 24th.
PERMANENT MINE HAULING MACHINERY.—A large body of masons has been engaged in preparing stone for the foundation of the compressor and turbine. This important work at both mine and surface is being vigorously proceeded with.

PRODUCE FOR OCTOBER	
Produced for October	32,445.9 oits.
Less loss on melting	108.8
	32,337.1
Recovered from crucibles, &c.	64.4
	32,401.5
Cost, &c.	
Labour	Rs. 45,402 8/11
Other charges	34,594 4/8
	80,096 9/69, at 21½d. per oit. = £7,175 7 0¾

Profit for the month £5,395 14 6¾

MINE.
Mineral raised from the mine 5055 tons.
Mineral quarried per borer per diem 2.04 "
Average attendance of natives daily 138.03
Average number of borers daily 97.07

The attendance of workmen has been less regular owing to the planting season.
EASTERN SECTION.—The condition of the lode in the sump and stopes adjacent thereto remains as last reported.

WESTERN SECTION.—There has been a large extraction of mineral from sections 235 "A" and "C."
The body of mineral (medium grade) at this horizon is very large, and with the present facilities for extraction and delivery to "B" shaft an increased output should be effected.

CULIAB.—Gold produce for the month of October, 895 oits., from 374 tons, equal to 2.393 oits. per ton.

PRODUCE, COST, &c.	
Produce as above	895.0 oits.
Loss in melting	7.2 "
	887.8 oits., at 8s. 1d. per oit., = £358 16 4¾
Cost	594 7 1¼

Expenditure on capital account in excess of produce £235 11 7
The improvement in the yield per ton for the latter division of the month is favourable.

The mineral treated during the month has been principally derived from the bottom of the north-west level, 20 fms. from the forebrest, what may be termed the main zone line of rich mineral worked at a higher horizon by former proprietors.

This is a temporary measure, so as to further prove this section, which the deep adit, when completed, will intersect. The north-west forebrest is still in disorder.

GOLD EXTRACTED TO DATE.—The produce for the first division of November (a period of 11 days) amounts to 10,255.3 oits., equal to 1182.2692 ozs. troy. It has been derived as follows:—

GENERAL OPERATIONS.			
	Oits.	Tons.	Oits. per ton
General mineral	7,453.0	from 1354	= 5.504
Mineral free from killas	2,370.5	" 351	= 6.753
	9,823.5	" 1705	= 5.782
Re-treatment, arrastras, Morro Velho	304.5	"	= 0.178
ditto Praia	127.3	"	= 0.075
Total	10,255.3	" 1705	= 6.015

The smaller mill duty and decline in the yield per ton is explained that during this division, owing to the breakage above referred to, no eastern mineral below stop 278 "C" has been quarried.

MINE.—Return of duty for 13 working days:—
Mineral raised from the mine 2.253 tons.

Mineral quarried per borer per diem 1.98 "
Average attendance of natives daily 134.54
Average number of borers daily 87.23

The unwatering of the eastern section was accomplished on the 15th inst. Contracts have been let for the sinking of the "B" shaft and driving of level 277 thereto.

The gold troop conveying seven boxes of bar gold, containing 21 bars, weighing in all 32,116.1 oits., equal to 3702.4639 ozs. troy, was dispatched for Rio and England on the 16th instant.

The following telegrams have been received:—
On Nov. 22.—Produce, 11 days (first division of November), 10,250 oits.; yield, 6.0 oits. per ton.

Profit for the month of October, 5400s. (Nov. 26).

On Dec. 1.—Produce, eight days (second division of November), 8000 oits.; yield, 7.2 oits. per ton.

Culiah, 200 tons stamped in 15 days; yield, 2.5 oits. per ton.

On Dec. 12.—Produce for the month of November, 30,000 oits.; yield, 6.3 oits. per ton.

Culiah, 200 tons stamped in 15 days; yield, 2.6 oits. per ton.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, \$30,000, from 643 tons of ore. Refinery, \$37,000. Mine looking very well. Start No. 1 furnace on Wednesday.

—R. Rickard, Nov. 28: During the past week explorations have been carried on in the mine with vigour, and I am glad to say with good results. The 200 westerly drift has been advanced 21 ft. in a favourable-looking ground for ore. The 200 cross-cut has been drifted 8 ft. on a well-defined and regular fissure, with occasional bunches of ledge matter; the ground is very hard, consequently slow progress has been made. The 400 quartzite has been drifted 29 ft. without any material change in the ground. The 400 north cross-cut (No. 3) has been drifted 39 ft., all the distance in one of very good grade; from this cross-cut a drift has been run in an easterly direction 20 ft. all the distance in good ore. This discovery being in virgin ground it speaks well for this part of the mine. The 500 west, from No. 12 chamber, has been drifted 7 ft.; the ground is very hard. The 500 north, from No. 12 chamber, has been advanced 7 ft.; the ground is very favourable. The 600 west drift has been advanced 20 ft. without any material change in the ground. The 600 west, from south fissure, has been drifted 23 ft.; the ground is very favourable, and we meet with occasional bunches of galena. The 600, south from same, has been drifted 10 ft. in very favourable ground for ore. The 600, north from No. 13 chamber, has been extended 4 ft., and a place cut for windlass to sink a winze on very favourable indications passed through in the drift. No. 2 winze, below the 600, from north fissure drift, is not looking so favourable as it was last week; we are now following a well-defined fissure, on which is found bunches of ledge matter, low grade ore, and stones of galena. The 300 westerly drift has been extended 5 ft.; the present end is in very hard limestone. In the 900 very little work has been done during the past week on account of an overflow of water from the Eureka Consolidated Mine; it is now abating, and in all probability work will be resumed in the course of a week or ten days. All the chambers are looking fully as well as they were last week, and are turning out the usual quantity of ore. On Monday I ran down the No. 1 furnace to cut out accretions, and started it up again on Monday night; it is working again very satisfactorily, and the last 24 hours we smelted 90 tons.

NEW QUEBRADA.—Month of October:—Output, 1559 tons. Dispatch from mines, 1464 tons—13.44 per cent. dry. Home arrivals, 1328 tons. Sales, 1569 tons; average price per unit, 12s. 6d. Quantity afloat on Oct. 31, 1393 tons. Stock at the mines, 1070 tons. Stock on wharf at Tucuman, 2531 tons.

PLACERVILLE.—I. Thomas, Oct. 17: During the past two weeks the winze from the fourth level has been sunk 8 ft., making a total depth of 66 ft. The fifth level has been driven north 3 ft., making a total length of 74 ft. Repairing the old stopes.

CAPE COPPER.—The directors have received the usual half-monthly letter from the mine agents. They write of Ookiep, the new shaft continues to be sunk through a good bunch of copper ore. This sinking retains its former value—5 tons of copper ore per fathom. The ground in the 80 north, in the extreme extremity towards new shaft, has greatly improved, and is now worth 5 tons of copper ore per fathom.

SABELLE (Gold and Silver).—Foreman's report for week ended Nov. 22: Total distance from monument to face of tunnel 1378 ft. Advance for the week 34 ft. Last Monday we encountered a string of quartz near the then face. This, combined with certain other indications, led me to run a short side drift, which took away one of my drills, the third one not having a column, hence the less progress. I have now ordered a column, so that I can use the third drill independently of the other two. We may find nothing in our side drift, and we may find pay ore. I shall stop it if I find nothing in 40 or 50 ft.

COLORADO UNITED.—The accounts of the manager for the month of October show that the operations for that month resulted in a net profit of \$3350.13. The receipts for ore sales were \$9923.18; against costs of \$6573.05, leaving a profit of \$3350.13. During October the Silver Ore Tunnel was continued a further 27 ft., at a cost of \$875. The company paid off the sum of \$7500 in reduction of the amount owing to Mr. Hamill, which is thereby reduced to \$22,500. The other obligations of the company are not of large amount, and the indebtedness has been brought down quite \$25,000 between Jan. 1 and Oct. 31, 1879.

CHONTALES CONSOLIDATED.—W. White, Nov. 5: Total quartz treated for the month of October, 2111 tons, which produced 309 ozs. of gold, or an average of 3 dwts. per ton. Value of the gold, 3334.4s.; cost at the mines for the month, 721.6s. profit, 1112.18s. I have been very busy forcing on the work at Estrella to get as much gold as possible this month, and preparing the stoping ground for an increase in our future returns. The company's agent at Greytown states that the gold duties, by a decree of the Government, will cease on Jan. 1 next. This will save at least 1500. per annum for the company.—Mines: San Sebastian: Stopped from western stop 855 varas; stopped from No. 2 stopes 157 varas; stopped east of eastern rise 130 varas. The latter stop I have suspended for the present, and met also some of the most unproductive places in the other stopes, as my letters of credit are not sufficient to meet the present working costs. Driftal quartz raised from San Sebastian during the past month, 1292 cars, or 1168 tons; worth on an average 2 dwts. to the ton.—Estrella: Drove main level 13 varas; lode 4 ft. wide, worth 4 dwts. to the ton. Stopped from No. 1 stop 275 varas. Stopped from No. 2 stop 156 varas. Total quartz raised, 1061 cars, or 943 tons, worth, on an average, 3½ dwts. to the ton.

BLUE TEXT.—G. S. Powers, Nov. 22: You will see by the report inside that we ran water for a few hours on two days this week, which we used in washing bedrock out of new cuts, and we are now engaged upon branch cuts, levelling them with tunnel frame. They are now no longer the more water until we get rain. We are working also in putting up new blacksmith's shop and other requirements preparatory to putting force on new tunnel, the face of which we have cut.

EBERHARDT AND AURORA.—F. Drake: Progress report for week ending Nov. 22:—Eberhardt and Aurora Tunnel: Distance run to Nov. 15, 4601 ft.; run for week ending Nov. 22, 18 ft.; run for month of November, 100 feet; distance run to Nov. 22, 4617 ft.—Remarks: The running time for the past week was four days, balance of time taken up in repairing the pump, and making some necessary repairs upon machinery. The rock in the tunnel continues to be exceedingly hard and difficult to break, as you will observe by the distance run for the month, it not being up to the average of other months. On the 23rd inst. the rock was a little softer, and I look for a still greater change very soon. Character of rock is black hard lime, stratification pitches slightly to the west, with small feeders of spar running through it in every direction. The mill continues to run on tailings, working usual amount.

DUNDERBERG.—Nov. 23: The 500 level south drift from east cross-cut has advanced 52 ft.; now in 137 ft. from the turntable. The west cross-cut from the station has advanced 22 ft.; now in 49 feet—the rock continues very hard. Nothing done in No. 1 intermediate drift, as I have put the men who were working at it to cross-cut from No. 2 intermediate, as I consider the chances for getting ore soon from No. 2 better than from No. 1; this cross-cut has been advanced 7 ft., and the No. 2 intermediate drift has been advanced 16 ft., but have not yet reached the old works. The 400 ft. south drift has been advanced 33 ft.; now in 75 ft. The ground continues to look more favourable as we are getting under the old Filadelfia workings, and if the ore continues down from the old workings will certainly cut it in another 100 ft., and I shall continue this drift until the south end of our claim is reached. Bullwacker Mine: During the week we have been building a gallows frame over the shaft, repairing winch, and putting a house over it, which is necessary before attempting anything underground. No change to report in other mines.—Assays: Two lots of tribute ore of 35 and 38 tons assayed respectively 85s. 57 and 80s. 02 gold and silver per ton, with 42 per cent. and 40 per cent. lead.

SENTINEL.—Dec. 15: The managers report as follows:—There is a slight improvement in our No. 4 level end driving west; the end is now worth 1½ ton of lead ore and 2 tons of blende per fathom for the width of the lode; driven this week 1 metre. The end in this level driving east is of the usual value, driven 1 metre. There is no change in the value of the stopes either in this level or that of No. 3 since last reported on. The cross-cut in the St. Barbe level has been driven this week about 1½ metre. Though there is no indication yet of our being near the lode, we think we are not far off now, judging from its inclination in the level above. We have broken this week with about 20 miners about 20 tons of silver-lead ore and blende. In consequence of the severe frost we have not been able to dress any lead since last report.

THE WEEK.

SATURDAY, DEC. 13.—All American railways gave way. Erie shares dropped 1½, having apparently being put up the previous day merely to secure a good carrying-over price. Atlantic and Great Western First Mortgage fell 1½, to 51, the allotment of new bonds at 48 encouraging sales while possible at 3 per cent. higher. Reading shares receded to 36½. Home railways were again in a lifeless condition, the only animation shown being for the Scotch lines, which rallied from the lowest level touched. British and Irish 1½, and Caledonian 1½. The 1871 bonds closed 2½ better. The payment of the overdue coupons seems now only a question of a few days. Mining shares dull.

MONDAY.—The settlement was finally concluded to-day, with but one failure. The losses this account have fallen on the public outside, and in some railways have been very severe. In York, A. and North British the fall has been 5 and 6 per cent., and mostly 3 to 4 in the other railways. The principal business to-day was centered in the Turkish Tribute Loans of 1854 and 1871, and the Defence Loan. The 1871 bonds closed 2½ better. The payment of the overdue coupons seems now only a question of a few days. Mining shares dull.

TUESDAY.—A serious relapse took place in Atlantic and Great Western Leased Bonds, 1873, owing to the unsatisfactory statement made by one of the trustees at yesterday's meeting. The closing price on Monday was 26½, while the first transaction recorded this morning was at 21½, from which there was a fall to 19½. The closing price was 20 to 22. The First and Second Mortgage Bonds declined 1½, to 50 and 22½. Home railways were depressed all day, and closed about the worst. Berwick receded 1½, and Great Eastern 1½, the closing price of the latter being no better than 58½. At the Mexican Railway meeting the directors' proposals to create 8 per cent. bonds to replace the present bonds, carrying 7 and 8 per cent., was carried unanimously. This is all in favour of a dividend being paid on the preference and ordinary share capital, which have both over and over again been recommended in this article to the notice of investors. Both the first and the second preference were admitted to a quotation to-day, and were dealt in at 17½ and 12½ respectively. At the commencement of the year the Firsts were obtainable at 7½, and the seconds at 3½. The ordinary shares, now

Mr. THOMAS THOMAS,
MINERAL AGENT AND ASSAYER,
COPPER ORN YARD, STRAND, SWANSEA.

Sales and Purchase of Minerals and Metals arranged. Assays and Analyses carefully conducted. References given.

C. A. SCOTT,
METAL AGENT AND BROKER,
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The Mining Market: Prices of Metals, Ores, &c.

(METAL MARKET—LONDON, DEC. 19, 1879.)

IRON.	£ s. d.	English, ingot, f.o.b.	£ s. d.
Pig, G.M.B., f.o.b., Clyde...	3 2 3	English, ingot, f.o.b.	95 0 0
" Scotch, all No. 1 ...	3 1 0-3 8 0	" bars ...	96 0 0
Bars, Welsh, f.o.b. Wales ...	6 7 6-6 10 0	" refined ...	98 0 0
" in London ...	6 15 0-7 0 0	Australian ...	90 10 0-91 10 0
" Stafford ...	7 17 6-8 10 0	Banco ...	95 0 0-(nom.)
" in Tyne or Tees ...	15 0 0-7 0 0	Straits ...	90 10 0-91 10 0
" Swedish, London ...	10 0 0		
Rails, Welsh, at works ...	6 10 0-6 15 0		
Sheets, cast, in London ...	9 0 0-9 5 0		
Plates, ship, in London ...	8 0 0		
Hoops, Staff ...	8 10 0-8 15 0		
Nail rods, Staff, in Lon.	7 15 0-8 0 0		
STEEL.			
English, spring ...	13 0 0-19 0 0		
" cast ...	30 0 0-40 0 0		
Swedish, keg ...	13 0 0		
" flag, ham ...	15 0 0		
LEAD.			
English, pig, common ...	18 15 0		
" L.B. ...	19 0 0		
" W.B. (nom.) ...			
" sheet and bar ...	19 15 0		
" pipe ...	20 5 0		
" red ...	20 0 0		
" white ...	30 0 0		
" patent shot ...	22 0 0		
Spanish ...	18 5 0-18 7 6		
NICKEL.			
Metal, per cwt. ...	15 0 0-16 0 0		
Ore, 10 per cent. per ton ...	20 0 0-25 0 0		
QUICKSILVER.			
Flasks, 75 lbs., war. (nom.)	6 15 0		
SILVER.			
Silesian ...	50 5 0-20 10 0		
English, Swansea ...	19 0 0		
Sheet zinc ...	25 0 0		

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; 1X 6s. per box more than 10 quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—The general appearance of the markets has varied but little, and the tendency the fore part of the week was slightly towards easier rates in some metals. The amount of business being transacted is of a limited character, which is no unusual occurrence about this time of the year. The easiness of the markets, however, has not arisen simply from the diminution of orders, but is also attributable to the desire on the part of holders to effect realisations before the Christmas vacation. It is not surprising that sellers should be desirous of taking their profits while the markets are quoted at such improved rates, especially as the improvement is as yet only partial, and not general as many supposed. In proof of this, reference need only be made to the limited deliveries from public stocks, and the increase which has been made to former accumulations. Buyers are evidently disinclined to follow up the rise in prices, and speculators are scarcely likely to relieve one another of their burdens. Those who bought some time ago and still hold on to their contracts must be prepared for a long holding, as business will probably decrease rather than increase during the next month, and consequently prices in all probability will remain nearly stationary. A depreciation is seldom appreciated by sellers; at the same time, a temporary reaction might not unlikely lead to considerable advantage, for in such a case an opportunity would be given to consumers to come forward, and many of the weak holders of metals would let go at least some portion of their stocks. Besides, if prices were again quickly reduced a renewed speculative enquiry might set in, and this, in combination with a bona fide demand, would place our markets in a much stronger position than that which they at present occupy. With the close of this week the business of the year may be considered to have almost ended. Christmas holidays being so close at hand will absorb more attention than anything else, and but very few buyers will care to enter into any fresh engagements before January. At most of the works throughout the country there will be but little doing, and their wants must necessarily be small. Statistics of metals at the close of 1879 will not assume a very favourable appearance, and there will, probably, be at least a visible stock of tin of 15,000 to 16,000 tons, in copper 59,000 to 60,000 tons, and in pig-iron 500,000 tons. There need be a good business to start the New Year with, to make a sensible impression upon these enormous stocks; and, although it is thought by some that there is no occasion to regard figures with any feeling of apprehension, yet we must candidly confess that we do not clearly see how markets are to be maintained if supplies are not regulated more in proportion to the demand, and an opportunity afforded for stocks to get reduced.

We understand that the committee of the Metal Exchange have signified their gracious intention of closing the Exchange from the evening of the 24th until Monday morning, the 29th inst. In acknowledging this kind concession of the committee we need only remark that on all occasions they have ever shown themselves ready to comply, if possible, with the wants and wishes of the numerous members of the Exchange, and while heartily thanking them for granting this extra holiday we at the same time congratulate the members on obtaining it, and we most sincerely hope that Christmas of 1879 will prove a season of the greatest happiness to all connected with the metal trade.

COPPER.—For the first half of the present month there is an increased stock of Chili produce in Swansea and Liverpool, which now amounts to no less than 30,640 tons. Chili copper afloat and chartered has increased exactly 2000 tons. The exports from Valparaiso during the first nine months of this year are larger than they have been since 1872, and amount to 38,869 tons. There is a great diminution in the ore and regulus compared with former years, and a considerable increase in Chili bars. The stock of other foreign ores and Spanish precipitate remains unchanged—1358 tons. Deliveries of copper for the first half of December continue very small, being a trifle under 700 tons. Two small cargoes of regulus have arrived, which do not go into stock, but figure among the deliveries, having been bought by smelters to arrive, bringing the nominal total up to 2028 tons. With this week's arrivals the stock of Chili bar copper in Swansea and Liverpool alone is equal to the published lists of stock of all kinds of copper in Europe at the same date in the years 1873 to 1876 inclusive. During the week the lowest point touched for Chili bars was 10s. 10d., but since which they have recovered their fallen position. At the public ticketing, held at Swansea last Tuesday, 2109 tons of ore were sold, at an average of 13s. 3½d. per unit, against 13s. 3½d. at the last sale. There will be no sale on the 30th inst.

IRON.—The future of this market is uncertain and difficult to predict. A good business has been done for America and other parts, but up to the present time it is evident that no great difficulty has existed in meeting the demand. The productive and manufacturing power of the country had only been suspended, and not extinguished. It has recently been put into operation again, and should orders of any magnitude be procurable at remunerative prices, the productive power of the country could still be considerably multiplied. The advanced quotations are not altogether very reliable; ironmasters may have filled their books as far as they are able or disposed to do unless they obtain enhanced prices, but a large amount of buying has been for open specifications, and in many instances marked brands as well as other kinds to be had from second hands below makers' prices; and until these contracts are run off the true position of the market cannot very well be ascertained. The list houses are now only taking orders subject to next Quarter Day's prices. The advance in prices must be followed by an advance in wages, and the next question to decide will be what amount of increase in wages the men will be satisfied with. This is a question which has led to so much trouble in the past that it may cause an equal amount of anxiety in the future. The returns which we publish this week from the various producing parts of the country continue to show that most of the mills are still well employed, and at many establishments increased numbers of orders are being received. The trade in the Welsh districts keeps active, and fresh furnaces are being put into blast, whilst others are being prepared to be re-lighted; and from Newport and other of the chief ports there are strong indications of better times. There is still a good demand for rails, and prices are rather stiffer. It is reported that large quantities of old material that have recently been shipped to the United States have been put into stock in that country; nevertheless, there are still good shipments being made, though they have to a considerable extent fallen off, compared with what they were a few weeks back.

More enquiry exists for bars, and an increased make is reported. Pigs sell well, and the prices now obtainable are remunerative to the seller. There is considerable activity observed at the various establishments at Sheffield, and operations are being effected on an extensive scale. Axes, tyres, and rails are in good request, and a steady demand for sheets and other descriptions of manufactured prevails. The Birmingham houses are all reported to be in a state of activity, and notwithstanding the great rise in prices there continues a brisk demand for

almost all descriptions. In cut and wrought nails especially is this noticeable, and the consumption of these is said to be much in excess of the supply. There seems more prospect of the wages disputes in this district being brought to a satisfactory termination. There continues a good demand at Leeds for best Yorkshire iron, and many makers now believe in the permanency of the improvement. The request for bars, plates, and general railway iron has rather improved. The millmen at several of the forges are claiming an advance of 5 per cent. wages, and are expected to obtain it, a few firms having already conceded to the application at a meeting last Tuesday at Hanley between the North Staffordshire miners delegates and the iron and coal masters, the employers unanimously consented to the advance of 10 per cent. in the men's wages. The Middlesbrough market remains firm, and a fair enquiry exists for delivery next year. The increased demand for manufactured to a great extent stimulates the requirements for pig-iron, forge qualities, however, are sought after more than No. 3, and quoted at 47s. 6d., and No. 3 is selling at 46s. 6d. to 47s., though there are some second-hand parcels offering at prices considerably below these figures.

The stock in Connal's stores continues to increase, and last Tuesday it was reported to have amounted to 96,750 tons. Shipments last week were more than they have been since October, amounting to about 18,200 tons, and notwithstanding the difficulty attending inland navigation to Scotland through the severe weather the deliveries were larger than usual. Preparations are being carried out to blow in more furnaces early next year, and there are indications of the trade still further developing. Rails are in fair demand, but the request is not equal to the shipbuilding requirements. An advance of 12½ in the men's wages has been reported. The price of plates, about 6½, bars 6½, 17s. 6d., and angles 7½ per ton. The Glasgow Warrant Market is rather irregular, the opening price of the week being 59s. 6d., from which it advanced to 60s., but receded again to 59s. 7½d., and afterwards 59s. was accepted. Another recovery, however, soon ensued, and 59s. 10½d. was quoted for cash, and 60s. 2d. one month, but an easier tone again prevailed, and 59s. 7½d. cash was accepted. The market, however, soon rallied again, and closed to-day at 62s. 3d. cash.

For the week ending Dec. 13, 1879	Tons	6,205
For the week ending Dec. 14, 1878	Tons	5,584
Increase		621
Total increase for 1879		154,257
Imports of Middlesbrough pig-iron into Grangemouth:—		
For the week ending Dec. 13, 1879		10,583
For the week ending Dec. 14, 1878		8,711
Increase		1,872
Total decrease for 1879		29,357

TIN.—At the early part of the week this market assumed an easier tone, and the value of fine foreign regulus receded until 89½ net was accepted; nevertheless a fair business has been transacted, and yesterday the market recovered fully 10s. to 15s. per ton, and to-day the official quotation is 90½, 10s. to 91½ cash. The arrivals for the last week or two have been rather small, and it is not improbable, if they continue limited, that the next statistics may show that the actual stock is reduced, and thus an impetus may be given to the market to commence the new year with. Should the improved demand for tin plates continue, the deliveries will probably keep satisfactory, and consequently buyers may ere long have to pay higher rates.

LEAD.—The advanced prices in this metal, which we reported in our last issue, have been maintained throughout the week, and quotations are now about 10s. per ton higher.

SPELTER.—This metal is firm, and a fair demand exists, for home consumption, for Silesian brands at the enhanced rate of 20½ 10s. per ton. Shipments, however, continue limited and without showing any signs of improvement yet awhile. English hard has become rather dearer, owing to the rise in Silesian, but there is no increase in the demand.

STEEL.—The market is steady and the prices firm.

TIN-PLATES are improving in demand, but quotations at present show little change.

QUICKSILVER.—The demand, as is usual at this period of the year, has been small and the market dull in tone, mainly on account of the arrival of sundry parcels of Californian, which were shipped when the price here was about 9½, and which, owing to the reduced value, are at present held off the market. The importers of Spanish, however, upon their arrival accepted 6½ 15s., which is the price at the close.

Messrs. HARRINGTON, HORAY, and Co. (Liverpool, Dec. 15).—Very considerable sales of Chili bars have been effected this month at 67½, 10s. down to 65½ per ton, the market to-day being dull at the latter quotation for spot good ordinary brands. Transactions in furnace material comprise about 1500 tons New Quebrada ore, 200 tons Mexican ore, and 1700 tons Betts Cove ore at 13s. 6d. per unit, 235 tons Spanish precipitate at 13s. 3d. to 13s. 11d., 50 tons English at 13s. 9d., 50 tons at 13s. 6d., and 15 tons Cobija Barilla at 14s. per unit. Chili copper charters since the 15th ult. comprise 1750 tons bars and 950 tons regulus for England and 400 tons bars for Continent—total, 3100 tons. Arrivals here during the fortnight of West Coast, S.A., produce:—Nippon, from Montevideo, 244 tons regulus, 584 tons bars; Genoa, from Valparaiso, 9 tons regulus, 36 tons bars; Arequipa, from Loja, 200 tons bars. At Swansea:—Capricorn, from Carrizal, 530 tons regulus. Stocks of copper (Chilian and Bolivian) in first and second hands, likely to be available, we estimate at—

According to the Board of Trade Returns the total imports and exports into and from this country for the first eleven months of the following years were—				
IMPORTS.				
	1877.	1878.	1879.	
Copper in ores	13,600	12,238	10,517	
Copper regulus and precipitate	13,554	18,356	24,171	
Bars, cakes, and ingots	37,255	37,385	42,791	
In pyrites (estimated).....	15,408	13,379	10,943	
Total	79,817	81,358	88,428	
EXPORTS.				
English copper, wrought and unwrt.....	20,744	27,875	29,841	
Foreign copper, unwrought	13,266	11,821	16,862	
Yellow metal	15,923	13,746	15,515	

According to the Board of Trade Returns the total imports and exports into and from this country for the first eleven months of the following years were—	1875.	1876.	1877.	1878.	1879.
Copper in ores	13,600	12,238	10,517	10,757	10,757
Copper regulus and precipitate	13,554	18,358	24,177	24,177	24,177
Bars, cakes, and ingots	37,255	37,385	42,791	42,791	42,791
In pyrites (estimated)	15,408	13,379	10,943	10,943	10,943
Total	79,817	81,358	88,428	88,428	88,428
EXPORTS.					
English copper, wrought and unwrt.	20,744	27,875	29,841	29,841	29,841
Foreign copper, unwrought	13,266	11,821	16,862	16,862	16,862
Yellow metal	15,923	13,748	15,515	15,515	15,515
Total	49,933	53,442	62,218	62,218	62,218

Messrs. FRY, JAMES, and Co.—We have experienced quiet for the most part since our last. COPPER was steady in demand and firm in value up to ten days ago, when demand slackened, and we have since fallen about 2s. a ton all round. The close of the year appears to hinder operations in some quarters, but mostly a feeling of confidence prevails. IRON continues to find a good market, the improved rates. TIN has been sold largely, and many of the sales were for immediate cash; hence prices have fallen about 4½ a ton from the highest. There is now an appearance of a steady market. SPELTER is dearer by a further 5s. a ton, and in good demand. LEAD is still in request, and again about 5s. a ton dearer. TIN-PLATES are experiencing a new demand, and have become rather firmer in the last ten days.

The settlement of the fortnightly account on the **MINING SHARE MARKET** occupied the chief attention of the dealers in the early part of the week, and one or two mines became weaker; thus showing there had been a heavy "bull" account in them. This was particularly the case with Devon Great Consols, Parys Corporation, and Wheal Crebor. After the settlement things slightly improved, except in tin mines, which continue flat. The weather is still affecting all dressing operations.

TIN.—The smelters have again reduced the standards for ore 2½ per ton, and tin shares are weak, with scarcely any business doing in them. Prices, therefore, are for the most part nominal. Carn Brea is quoted 53 to 55; Dolcoath, 50 to 52; Botallack, 80 to 90; Cook's Kitchen, 3 to 3½; East Lovell, 1½ to 2; East Pool, 21 to 22; South Condurrow, 12 to 12½; South Frances, 9½ to 10; Tincroft, 15 to 16; West Basset, 10½ to 12½; West Welsh Frances, 11 to 12; West Peavor, 6 to 6½; Wheal Agar, 6 to 6½; Wheal Basset, 2½ to 2½; Wheal Peavor, 19 to 19½. Wheal Grenville, 4½ to 5; the accounts to be presented to the meeting show a loss of 840£ on the three months' working, and a balance of liabilities over assets of 2400£. The costs were 3603£. Tin sold 54 tons, realising 2673£. At the South Crofty meeting, in Cornwall, the accounts showed a loss of 843£ on four months' working, and a balance against the mine of 3964£. A call was made of 10s. per share. Wheal Kitty (St. Agnes), 2 to 2½; Wheal Uny, 1 to 1½.

COPPER MINES.—The standard for copper ore declined 4½ 5s. at the Cornish Ticketing on Thursday. The average price of the ore

was 37 17s. per ton. Devon Great Consols, 6 to 6½; the sale here, 868 tons, realised 23197 15s. 6d. Wheal Crebor since the settlement have been weaker, and leave off 6½ to 7. The sale of ore, 489 tons, realised 23077 14s. 6d. The latest report values the 120 east at 100£ per fathom, and the 120 west at 80£ per fathom. The new lode in the 108 east is worth 25£ to 30£ per fathom. South Caradon, 75 to 80; the sale here, 440 tons, realised 22087 12s. Marke Valley, 25s. to 30s.; the ore here, 200 tons, realised 7687 12s. East Caradon, 2½ to 3; the sale here, 15 tons, realised 767 10s. Parys Corporation at the account declined to 17s., 19s., but advanced on Thursday, and leave off 19s. to 21s. The agents report still continues promising in regard to the 90 south, and he looks for a discovery shortly. Hingston Down, 10s. to 12s. 6d.; Mellanear, 4½ to 4½; New Cook's Kitchen, 4½ to 5; Morfa Du, ½ to ½; East Crebor, 20s. to 22s. 6d. Prince of Wales, 10s. to 15s.; West Seton, 42½ to 47½; West Tolgus, 24 to 26.

LEAD continues firm, and there is more doing in lead mines than in others at present. Vans are 23½ to 24½; no change at the mine since last report. Great Laxey, 18 to 19; Roman Gravel, 12 to 12½. Tankerville, 5½ to 6½; the 220 east is in a large cavity, the ore course on its lodes worth 3 tons of lead per fathom. South Darren, 2½ to 3½; the lode in the 110 is becoming more compact and defined. The east end has improved, especially in the bottom; present value 13£ per fathom; west end, 20£ per fathom. East Roman Gravel cross-cut in the 97 south is opening out a lode 5 ft. wide, worth ½ ton of lead per fathom. The sampling is 30 tons of ore, Pandora, 15s. to 20s.; the 33, on Goddard's lode south, has improved. Glenroy, 17s. 6d. to 22s. 6d.; the north end here appears to be entering the ore ground, and the south end is getting clear of the slide referred to last week. Should ore be met with here the shares might have a great rise, as the company have a large capital at command, with shares 4½ fully paid up.

Pateley Bridge, 15s. to 17s. 6d.; the 40 west, on Rake vein, is worth 4 tons per fathom, and the ground favourable. The 40 east is worth 2 tons per fathom, and very promising for improvement. The mine has sold 20 tons of pig-lead, at 17½ 2s. 6d. per ton. Assheton, 17s. 6d. to 22s. 6d.; the accounts for 12 months to Nov. 8 show a loss of 1869£ 10s. 9d. The lead ore sold, 207 tons, realised 17797 6s. 8d. The directors feel that to properly develop the mine it will be necessary to provide fresh capital, and they have under consideration a scheme for doing so. West Assheton, 3½ to 3½; East Van, 2½ to 2½; Van Consols and Glyn, 7s. 6d. to 12s. 6d.; Gorsedd and Merlyn, 1½ to 1½. Grogwinion, 3½ to 3½; the mine has sampled 100 tons of lead. Hroddfoot, 2½ to 3. Leadhills, 4½ to 4½; this mine continues to improve. Minera, 10½ to 11½; North D'Eresby, 1 to 1½; West Chiverton, 2½ to 3; West Holway, 1 to 1½; Caron, 1½ to 2½; Gwornymynydd, 5½ to 5½.

FOREIGN MINES.—Blue Tent, 2 to 2½; Birdseye Creek, ½ to ½; Cape Copper, 33 to 34; Colorado, 1½ to 1½; Don Pedro, 14s. to 16s.; Eberhardt, 2½ to 3½; Exchequer, 3s. 9d. to 6s. 8d.; Flagstaff, 1½ to 1½. Chontales, ½ to ½; the advices for October show a profit of 1117 8s. The gold returned (309 ozs.) is valued at 8337 4s.; costs, 7217 6s. Javali, 5s. to 7s. 6d.; the advices here show a return of 2600 ozs. of gold, estimated at 650£, against a cost of 8817. Placer-ville, 2½ to 2½; New Zealand Kapanga, 10s. to 12s. 6d.; New Quebrada, 3 to 3½; Panulillo, 4½ to 5½; Pestana, 4s. to 6s.; Port Phillip, 7s. 6d. to 10s.; Richmond, 9½ to 10; St. John del Rey, 270 to 280; Santa Barbara, 2 to 2½; Tecoma, 2s. 6d. to 5s.; Ruby, 5 to 5½; Canada Gold, 1½ to 1½.

The Market for Mine Shares on the Stock Exchange has shown a striking contrast as compared with the past few weeks; there has been no recovery since the dulness caused by the settlement. In the first place there is a disinclination to commence new business so near the beginning of a new year, and, secondly, metals are decidedly weaker. The fear that the advance in tin was too rapid to be permanent was expressed whilst the rise was going on, and the downward movement of the tin standards during the past fortnight seems to confirm this view. In estimating probable future movements the large stocks which had to be disposed of had necessarily to be taken into account, and the only conclusion that could be arrived at was that continued sales at maximum prices could not be hoped for. The tin market is now in a much more healthy condition, although, perhaps, less active than a few years since, so that confidence is felt that something near the present standards may be maintained, although temporary drops are not improbable. Copper is not in an unsatisfactory position, notwithstanding the decline of 4½ 5s. in the Cornish standard yesterday. It is a curious fact that when Devon Great Consols ore is sold the stated average standard is usually relatively lower, but this seems to arise rather from the method of calculation (730 tons out of the 868 tons of Devon Great Consols ore was of low produce) making too large an allowance for low produce ore than from the miner receiving less for his ore. The Devon Great Consols ore averaged 2½ 13s. 6d. nearly for the 868 tons, which is a good remunerative price, and as much as could reasonably have been expected, considering the quantity of fine copper contained in the ore sold, and the advanced standard paid at Swansea on Tuesday. Calculating in the same way, the prices obtained by Wheal Crebor, South Caradon, &c., it will be found that they have obtained as good prices as if they had sold at the previous Cornish sale. Lead ore remains without material change, and, consequently, the comparative lull has been less felt in mines producing it. On the whole, the prospect is by no means discouraging, and it is generally felt that the New Year will open prosperously for all.

The Provincial Share Markets are generally dull, owing no doubt to the approach of the holidays, and also to the slight reaction setting in. At Newcastle-on-Tyne, however, there has been considerable briskness in mining shares, and sellers are by no means plentiful. The Cornish markets have been adversely affected by the drop in the tin standards, and the comparative weakness of metals generally.

The Bell Vean Tin and Copper Mining Company has been incorporated with limited liability and a capital of 24,000£, in shares of 2£ each, to purchase for 12,000£, and develop the mine of the same name, at Gwennap, Cornwall. The directors are influential and business men in the Scotland and Newcastle-on-Tyne districts, and the registered offices are at Haltwhistle, by Carlisle. From the abridged prospectus, which will be found in another column, it will be seen that an attractive feature has been introduced in the payment of the purchase money—the 1000£ cash is payable only out of net profits, and one-half of the fully-paid shares are non-transferable until 2500 other shares have been subscribed for and allotted. A working capital of 5000£ to commence with is thus ensured, and it is not doubted long before this is expended the remaining 7000£ of working capital will be easily placed—12,000£, being considered ample to equip and fully develop the mine. The sett, which is held for 21 years at 18th dues, is just north of the Treavean lode, which returned 1,000,000£ profits, and its lodes, including the Penstruthal great copper lode, are in a fine geological position as the richest part of it. An adit is now being driven to Gobbin's lode, formerly worked from surface, and said to be worth 30£ to 40£ per fathom at present price of tin. The property has been very favourably reported upon by practical men. Capt. John Gilbert, of West Wheal Tolgus, after detailing the workings, &c., states that there is a very great probability that, as in the other rich mines in the district, the Penstruthal copper lode will be found to produce good deposits of copper ore dipping east, and extending under the overlapping kills, and the lodes and branches described will drop into this lode in depth, and act as feeders, and probably very much enhance its productiveness. Capt. Jas. Nicholas, of West Basset, states that the lode now standing in Gobbin's shaft is worth, as tested by the late manager, 13 cwt., or at present price 30£ of tin to the fathom.

Notice has been given that the list of applications for shares in the South Indian Gold Mining Company (Limited) will be closed after Monday, Dec. 22, for London, and the following day for the country.

The Sandwell Park Colliery Company's (Limited) shares have been in great demand, and advanced to 22½, 25£. The shareholders in this concern must be highly gratified with the present output of coal, which now amounts to over 1000 tons a day. There is great credit due to the board of directors and engineers of this undertaking for their excellent management. At this colliery, which is situated between Birmingham and Wolverhampton, there is some of the finest and most powerful machinery to be seen at any colliery in this country. To show what the power of this machinery is, they raised no less than 1035 tons of coal on Tuesday last in only eight hours' working from one shaft.

Devon Great Consols, 6½ to 6½, have been largely dealt in during the week. The sale of 868 tons of copper on Thursday last, as was expected, realised about 23207. It appears the regular monthly payday falls this month on the 27th (two days after Christmas Day); but through the kind consideration of the Chairman and managing director (Mr. Peter Watson) the pay will take place to-morrow (Saturday, the 20th). A correspondent, writing from Tavistock, states that this act has been highly appreciated; and he adds that

great progress is being made with the erection of the rock-boring machinery, which will quickly open out increased reserves of ore ground, as well as lead to increased monthly sales.

St. John del Rey, 270 to 280; the advices received on Monday state that in connection with the permanent mine hauling machinery a large body of masons have been engaged in preparing stone for the compressor and turbine. This important work, at both mine and surface, is being vigorously proceeded with. The improvement in the yield per ton at Ouiba for the latter division of October is favourable. The mineral treated during the month was principally derived from the bottom of the north-west level, 20 fms. from the forebreast, what may be termed the main zone line of rich mineral worked at a higher horizon by former proprietors. This is a temporary measure, so as to further prove this section, which the deep adit, when completed, will intersect. The north-west forebreast is still in disordered ground.

New Quebrada, 3 to 3½; the output for October was 1559 tons, and the despatch from the mines 1464 tons, of nearly 1½ per cent. dry. The home arrivals were 1326 tons, and 1569 tons have been sold at 12s. 6d. per unit. There are 1393 tons afloat; the stock at the mines was 1070 tons; and on the wharf at Tucacas, 2531 tons. The figures of quantities and quality compare favourably with those of the preceding month, and the price realised per unit shows an advance of 1s. 3d. It is satisfactory to be able to state that the minimum of 30,000, payable to the Bolivar Railway Company, is estimated to have been provided from the output of ore to the end of September, consequently for the months of October, November, and December the Quebrada Company are entitled to have their ore carried by the railway company at the rate of 30s. per ton.

Missouri Lead, 10 to 11; advices dated Nov. 27 report that nearly all the timber necessary for repairing St. Clair shaft has been cut; estimates are being received for retimbering the shaft, and the work will soon be put in hand. Operations generally are progressing favourably. Pig-lead (soft Missouri) quoted in St. Louis at about 26½ per ton, "very scarce and in demand."

Richmond, 9½ to 10; the usual telegram from the mines at Eureka, Nevada, states that the week's run was \$30,000 from 643 tons of ore. During the week the refinery produced doré bars to the value of \$37,000. The mine is looking very well, and they were to start the No. 1 furnace on Wednesday. The manager (Nov. 26) reports that during the past week explorations have been carried on in the mine with good results. All the chambers are looking fully as well as they were last week, and are turning out the usual quantity of ore. On Monday they ran down No. 1 furnace to cut out accretions, and started it up again on Monday night. It is working again very satisfactorily; the last 24 hours they smelted 90 tons. The directors' half-yearly report, prepared for presentation at the meeting on Tuesday, states that the manager's report, published every week in the Journal, have supplied the details of the underground development. These developments are of a most satisfactory character. Chambers Nos. 11 and 12 (from which upwards of 25,000 tons of ore have been extracted) are still yielding large quantities daily. Ore has been discovered in several other parts of the mine; two new chambers, numbered 13 and 14, have been opened out on the sixth level, and another between the 200 and 400 levels; ore has been struck on the 200 level, and followed down about 30 ft.; and, lastly, ore has also been struck on the 400 level under the Tip-Top ground. This latter discovery is a most important one. The grade of the ore, which had fallen to \$45 per ton in March last, has gradually improved, the average yield now being \$60 per ton. The new furnaces are answering better expectation. When the recent discoveries of ore have been properly opened out, it is expected that a second large furnace will be started. During the first six months of the current year 20,553 tons of Richmond and 4855 tons of purchased ore have been smelted, producing 4844 tons of lead, 554,288 ozs. of silver, and 14,499 ozs. of gold. The refinery is working well, having refined all the bullion produced by the company during the six months—4863 tons. The estimated net profit for the six months ending August 31, 1879, from mining, smelting, and refining is about the sum of 70,000. The advance in the price of lead is fully maintained. They have sold 1100 tons at 5s. per lb. (or 22½ s. per English ton), and will sell the remaining 3000 tons in stock as soon as possible. The latest New York quotation is 5½ c. per lb. Silver also commands a better price. As regards the legal proceedings, there is a possibility that the appeal case may come on for hearing at Washington in the course of a few months. The depositions of the company's witnesses as to the value of the ore removed from the portion of "Potosi Chamber" beyond the compromise line extended, have been recently taken at Eureka—the effect of this evidence, under any circumstances, the sum claimed for damages to a nominal amount.

Ruby, 5 to 5½; the report received this week from the mines states that the drivages are being continued with favourable indications. It is reported to-day that a discovery has been made in the Dunderberg, and a large business in the shares is reported. A correspondent of the New York Mining Record, dated from Eureka, Nov. 11, says:—The Ruby and Dunderberg Consolidated Mining Company, an English corporation, have at last settled the litigation in which they have been involved for several years, and are now making extensive preparations to resume work on their various mines. Already a force of men are at work clearing out the various drifts and mines on the Dunderberg and Atlas Mines, and bids are being invited for sinking shafts and running drifts. This company has shown a great amount of energy and enterprise, and has unbounded faith in the permanency of the mines of the district.

London and California, ½ to ¾; the clean-up at the Original Amador Mine for the month of November is estimated at \$6000. Sierra Buttes, 1½ to 1¾; ditto, Plumas Eureka, 2½ to 2¾; the result of the working at the Sierra Buttes and Plumas Eureka Mines for November, 1879, has been received. At Sierra Buttes Mine the total receipts were \$23,939, and the total working expenses \$21,932. At Plumas Eureka Mine the total receipts were \$47,610, and the total working expenses \$23,507.

The Market for Hydraulic or Gold Washing Shares has been more animated than for some time past. Birdseye Creek shares have been in demand at quotations. The latest advices from California say:—"The rains give promise of a good water supply, and there is no occasion for fear of the future in that respect. There is more activity in mines just now than at any time within the previous 10 years." Blue Tent, 1½ to 2½; advices received announce that washing recommenced on Dec. 1. Placerville, 2½ to 2¾; steady work is being prosecuted with good results, and the mine continues to open out well.

Yorke Peninsula, ½ to ¾; ditto pref., ¾ to 1½; Captain Anthony (Oct. 27) reports that the new lode differs from the others in the property in the richness of the ore and its want of regularity. As, however, the ore is yellow, coated with black, he is hopeful that at greater depths, and when the regular yellow ore is obtained, they will witness greater regularity also. He is putting in a cross-cut at the 43 to intersect the lode at that level, but has not yet driven far enough. There have been shipped by the Gateside 202 tons of 17 per cent. ore, and they have on hand at the mine 262 tons of 13½ per cent., 350 tons of smalls at 5 per cent., and 1650 tons of dredge ore of 5 per cent.

Canada Gold, 1½ to 1¾; the returns of gold for the month are worth nearly 5000L, and a large profit is reported to be left, although the gold has been derived from exploratory works almost entirely.

In Lead Mine shares there has been, as already stated, more animation than in those of other mines. Leadhills have been in demand at 4½ to 5, owing to the recent discoveries of ores in the 20 fm. level, which is still worth 9 tons of lead ore per fathom. The manager's monthly report will be found in another column. Tankerville, 6 to 6½, have also been in active demand all the week, and shares are scarce. The bottom of the mine is opening out well, and the new lode promises to become very productive as development progresses.

Van, 2½ to 2¾; there is no alteration since the report in last week's Journal. Everything is proceeding satisfactorily. Gwernymynydd, 5½ to 5¾; the lode in the flat measures continues to look well, and the rise in the lode towards the upper flat is worth 2 tons per fathom. Last week 50 tons of lead were sold at 12½ s. 6d.

Mineral Corporation, 11 to 13; the extension of the deep adit with the aid of the boring machinery continues at about the usual rate—1½ fms. per week; the ground continuing hard. As compared with hand labour in the same ground, this represents an important saving of time. The manager reports that the lode in the stopes is still looking well, and the frost having now broken up, they are making satisfactory progress with crushing and dressing lead and blende ores.

Grogwin, 3½ to 3¾; the usual monthly parcel of 100 tons of lead has been sampled, for sale on the 27th instant. Frongoch, 3¾ to 3¾; the annual meeting is called for December 29. The directors' and manager's reports give a satisfactory account of the past year's working. Regular sales of ore were only commenced in September last, yet between that time and the close of the financial year on November 30 the returns were sufficient to pay the whole working cost for the entire year, and leave a fair balance as profit. The sales for the current month will be the largest yet made, and also bring in the highest prices. It is mentioned by the manager that the returns already made have been obtained without touching the best bunch of ore in the mine—that in the bottom level, which is valued at 3 to 5 tons of lead per fathom, and is now available for taking away. This rich run of ore ground has been considerably developed, and was worked on tribute by the old company at the low price of 3L per ton for lead.

Caron, 1½ to 2¾; the frosty weather has somewhat hindered working here through the stoppage of the pumping-wheel. Prospects otherwise continue good. Wye Valley, ½ to ¾; no fresh news. The resolution to wind up has been confirmed. West Wye Valley, ½ to 1. Red Rock, 1½ to 2; good accounts continue to be received, and the mine is stated to be improving. Pateley Bridge, ¾ to 1; the 40 west, on Rake vein, is 4 tons of rich lead ore per fathom. The 40 east is worth 2 tons per fathom, and both ends are presenting appearances favourable for improvement. The various ends on Fielding's vein are turning out fair quantities of ore. At surface all matters are progressing satisfactorily.

The subjoined is the list of the closing quotations:—Asheton, 1 to 1½; Carn Brea, 51 to 53; Devon Great Consols, 6 to 6½; Dolcoath, 50 to 52; East Caradon, 2½ to 3; East Van, 2 to 2½; Gwernymynydd, 5½ to 5¾; Glenroy, ¾ to 1½; Great Laxey, 18 to 19; Hingston Down, ¾ to 1; Leadhills, 4½ to 5½; Marke Valley, 1½ to 1¾; Pateley Bridge, ¾ to ¾; Roman Gwella, 12 to 12½; Tankerville, 5½ to 6½; Tincroft, 15 to 16; Van, 23 to 24; West Asheton, 3½ to 3¾; West Basset, 10 to 11; West Chiverton, 3 to 3½; Wheel Crebore, 6½ to 7; Wheel Grenville, 4½ to 4¾; Almada and Tiro, ¾ to ¾; Birdseye, ¾ to ¾; Blue Tent, 2 to 2½; Canada Gold, 1½ to 1¾; Cape Copper, 33 to 34, ex div.; Chontales, ¾ to ¾; Colorado United, 1¾ to 1¾; Don Pedro, ¾ to ¾; Eberhardt and Aurora, 2¾ to 3; Exchequer, ¾ to ¾; Flagstaff, 1½ to 1¾; Frontino and Bolivia, 2½ to 2¾; Huatafall, 1½ to 1¾;

Kapanga, ¾ to ¾; New Quebrada, 3 to 3½; Nouveau Monde, ¾ to 1; Festa-reña, ¾ to ¾; Placerville, 2½ to 2¾; Port Phillip, ¾ to ¾; Richmond Consolidated, 9½ to 9¾; Ruby and Dunderberg, 5 to 5½; St. John del Rey, 275 to 280; Santa Barbara, 2½ to 2¾; Sierra Buttes, 1¾ to 1¾; United Mexican, 2½ to 3; Yorke Peninsula, ½ to ¾; Yorke Pref., ¾ to 1½.

At the Swansea Ticketing, on Tuesday, 2109 tons of ore were sold, realising 12,164L 18s. The particulars of the sale were—Average standard for 9 per cent. produce, 91L 10s. 10d.; average produce, 8½; average price per ton, 5L 15s. 4d.; quantity of fine copper, 186 tons 15½ cwt. The following are the particulars of the two last sales:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Nov. 25	1847	230 19 2	105½	£7 2 4	13s. 3 d.	286 10 5
Dec. 16	2109	91 1 10	8½	5 15 4	13 0½	65 2 7

Compared with the last sale, the standard is about stationary, the rise being only 2s. 8d., which scarcely affects the value of the ore. Messrs. Richardson and Co. report that the Betts Cove ore gave a produce of 7½, and realised 13s. 2½d. per unit; Caveira, produce 8 11-16th, per unit 12s. 7½d.; Union, produce 9½, per unit 13s.; Berehaven, produce 8½, per unit 13s. 9½d. There will be no sale on Dec. 30.

At the Truro Ticketing, on Thursday, 2321 tons of copper ore were sold, realising 8927L 11s. The particulars of the sale were—Average standard, 102L 15s.; average produce, 6½; average price per ton, 3L 17s.; quantity of fine copper, 149 tons. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Nov. 20	2079	£103 5 0	6½	£3 17 6	12s. 1d.	£80 9 0
Dec. 4	1023	104 14 0	6½	4 4 6	12 8½	63 8 6
18	2321	102 15 0	6½	3 17 0	12 0	60 0 0

Compared with the last sale the decline has been in the standard 4L 5s., and in the price per ton of ore about 5s. 5d.

TRAMWAYS.—The closing prices of this evening, as quoted by Mr. W. ABBOTT, of Tokenhouse-yard, are given in tabular form in the last page of the Journal.

GAS SHARES.—The principal business in these shares, according to this evening's report of Mr. W. L. WEBB, of the Stock Exchange and Finch-lane, has been in Bahia, 14½; Commercial, 180½; Continental Union, 19½; European, 17½, 18; ditto, new, 8½, 8¾; Gas, A, 177, 180; ditto, 7 per cent. max., 135, 134½; ditto, fifth issue, 16½, 16¾; ditto, E, 10 per cent., 211, 211½; ditto, 4 per cent. Deb., 99½; Imperial Continental, 174½, 178; Hong Kong and China, 14½; Para, 5½; Rio de Janeiro, 26½, 27½; South Metropolitan, A, 200, 200½. (1 exceptional amount at special price.) All gas stocks are flat. Imperial Continental are quoted 5 per cent. lower. For closing prices see list on last page of Journal.

INSURANCE SHARES have, according to this evening's report of Mr. W. L. WEBB, of the Stock Exchange and Finch-lane, been dealt in as follows (1 exceptional amount at special price):—Alliance British and Foreign, 28½; ditto, Marine, 28½; Imperial, 152, 152½; Liverpool and London, 15½, 15½; London, 62½; London and Provincial, 4¾; Rock, 8¾; Universal, 10¾, 10¾. Insurance shares are steady. For closing prices see list on last page of Journal.

Messrs. PILEY and ABELL—GOLD: The withdrawals from the Bank have been moderate this week, comprising only 110,000 sovereigns, which have been sent to Egypt. There has been no demand whatever for bars, and the Bank has therefore, received the only arrivals, which, trifling in value, amount to 16,000L.

SILVER: The market has been without animation, and but little business has been doing during the week, a few transactions only having taken place at 52½d. per oz. When the amount by the Pacific steamer came to hand yesterday, 52½d. per oz. was all that could be obtained, this slight further decline being caused by the reduced rate at which the Council Drafts had been placed. The arrivals since our last comprise 85,000L per Galicia, from the Pacific, and 2000L from the West Indies. The P. & O. steamer leaving to-day takes 162,600L to Bombay.

* With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Trial of Explosives—Powder (J. W. Wilkinson); on Steam-Boilers; the Coal Trade, and Colliers' Wages (E. Lever); Meeting of Northern Coalowners in London (W. J. Thompson); Immense Increase of Revenue to Russia—Hyper-rehabilitation of Financial Resources (W. J. Thompson); Manufacture of Copper and Nickel; Tin, and its History (Dr. Reyer); Flagstaff Silver Mining Company; Chontales Mining Company (S. K. Schroer, T. Kirkby); Mining in Ireland—No. 1; the Mining Interests of Great Britain for the Year 1879—No. 1. (R. Trevellick); Boring Machinery—Rock Drills; the Discovery of Tin in Roche (R. Symons, D. Cock, S. B. Cock); South Wheel Frances (A. T. James, C. W. Seabrooke); the Cornwall Great Consols (R. Owen, R. Goldsworthy); Mining in Cardiganshire (J. Pell); Meetings of Public Companies: St. John del Rey, Virneberg Copper, Buena Ventura, Emma, and Great Holway Lead Companies. Russia Copper. The "Hurricane" Portable Forge. Skerme Ironworks Company, &c.

COPPER ORE SALES.—(EASTERN MINES).—Three of the best copper ore sales made for a long time took place on Thursday last at the Truro Ticketing. Devon Great Consols realised 2319L; South Caradon, 2208L; and Wheel Crebore, 2307L. There is an increased demand for shares in good copper mines, and these three may be considered the leading concerns in what is called the Eastern District, and which mines are likely to pay good dividends next year.

THE MINE SHARE MARKETS.—Mine shares generally during the last week or two have not been so firm, nor have there been so many transactions. As is always the case in the last three or four weeks of the old year, there is gradually less business doing, not only in mine shares but in stocks and shares generally, but a revival again sets in as soon as the holidays of Christmas and the New Year are over. There is but little doubt that next and following month's prices of most mine shares will gradually harden, and an active demand set in, more especially as an increased demand for both copper, tin, and lead is almost certain to take place, looking at the increased home consumption and the exportation of these metals now going on.

MINES, AND THE FROST.—DRESSING OPERATIONS.—During the last three weeks the dressing operations of the various ores have been greatly interfered with owing to the severe frost, but we learn that at all the mines work has been resumed, and the lost time will soon be made good, both as regards the work and the monthly dressings of ores.

DENBIGHSHIRE CONSOLIDATED.—The discovery at the 112 east main lode looks well, and deliveries to the dressing floor satisfactory.

GREAT HOLWAY.—The reports presented at the meeting on Thursday last were very satisfactory. When all the development works are in progress a return of 200 tons of lead is probable. The prospects are excellent, and all praise is due to the management for the plucky way in which the machinery has been laid down and the large outlay that has been incurred during a period (now, happily, passed away we hope) of serious depression. It is to be hoped that success is now achieved; and in refraining from issuing more shares at this period of the company's history the directors have resolved wisely. Regular returns should commence next month.

BODIDRIS LEAD MINE.—The discovery recently made in the new lode at these mines not only continues, but improves in richness as depth is attained. We are informed that two eminent engineers have recently inspected these mines on behalf of some large shareholders, and they speak of the property and its management in the highest terms. The lode is of a masterly character, being 16 feet wide, and the ore course in the present end going east, although at a comparatively shallow depth, is 3 ft. wide, and producing fully 2½ tons of rich silver-lead ore per fathom. No such discovery has been made in the immediate district since that of the great Minera.

NORTH D'ERESBY MOUNTAIN LEAD.—Before the lode in the No. 2 adit level attained its present value an assay from a small stone of ore roughly selected was made by the Par Smelting Company. The result is advised in London this morning (Friday) as containing 9 ozs. of silver per ton, and 47 per cent. of lead. It must be borne in mind that this is merely from the bruised stone without being dressed, and, therefore, is very satisfactory.

COED MAWR POOL AND FRIDD MINE.—Work at surface has been impeded by the severe frost lately, but the explorations underground are being vigorously carried on. A fine cross-course, which has produced large quantities of lead (one stone weighing over a ton) from surface to the 20, is being driven both north and south, with the view of intersecting the numerous east and west lodes and branches, and proving their run and dip. This cross-course has already intersected five lodes and branches running east and west, and the other day, in driving the end north, another fine lode was discovered, containing a solid rib of lead 4 in. wide up and down the end. This lode appears to be going in the direction of the Fridd sett, and it is believed to be one of the lodes which proved so rich in that mine. Should this be the case, there will be about 100 fms. run

of virgin ground between these two points. This discovery adds materially to the already great value of this mine. The cross-cut south is expected soon to cut into several lodes which have been very productive at a shallow depth in another part of the mine.

CAMBRIAN MINING COMPANY.—We hear that the directors of this company, in order that no delay should arise through the severity of the weather affecting the water-power, have ordered of Robey and Co. a 30-horse power engine, which will be at work very shortly. On Tuesday last they sold at Swansea another remarkably rich parcel of ore—50 tons; average produce over 18 per cent.; price realised, 604L 9s.

CORNWALL GREAT CONSOLS.—As a proof there is no lack of capital for healthy mining speculation the capital of this company has not only all been subscribed for, but applications for shares made in excess of the number to be allotted. It must be particularly gratifying to the proprietary to receive, even at this early stage of the development of their first purchase, such a confirmation of the prospects on which the company was based. From the report of Capt. Miners in to-day's Journal it seems tributaries are already at work raising tin, and many more will shortly be put on at various points, and a parcel of tin will be sent to market early in the coming year. It is rumoured the company are negotiating for the purchase of other properties in the neighbourhood, in accordance with its original objects and implied by its name. This system of working several properties under one combination has always proved successful in Cornwall and Devon, notably in the case of the famous old United Mines, Clifford Amalgamated, and Devon Great Consols. We shall watch with interest the progress of the Cornwall Great Consols, which all true friends to mining must heartily wish all the success which the spirit and energy of the promoters deserve.

BEDFORD UNITED MINES.—The cross-course in the 127 having been intersected, the probability of a good course of ore being met with on the other side is almost a certainty, large returns having been made from the parallel lode (Wheal Marquis) on the eastern side of this same slide. As the price of copper will, doubtless, improve early in the New Year, and the monthly samplings increase, good profits may be expected, and that the mine will again resume its position in the Dividend List.

ISABELLE GOLD AND SILVER MINES.—The directors have received advices that ore has appeared in the tunnel. The indications are of such a character as to encourage the manager to run a lateral drift in order to ascertain whether any large body of pay ore may be found in the immediate locality, although the face of the tunnel is still 1000 feet or so from any known lode. Should this incipient discovery prove of any value to the company it would tend to indicate the correctness of the opinion of one of the directors who visited the mines that the whole of Silver Mountain is a mass of ore more or less valuable as the tunnel may chance to develop it. The Exchequer and I.X.L. mills are in complete order, and could be promptly utilised at custom rates, not only producing returns for the Isabelle Company, but also for the other two companies.

FORGING AND SHAPING METAL.—An improved apparatus consisting of a hammer having a to and fro motion imparted to it by toggles combined with an anvil capable of being adjusted to any suitable distance from the face of the hammer, has been invented by Mr. JAMES HARGREAVES, of Widnes. The toggles are moved by means of cranks, eccentrics, or other suitable means. After being depressed by the toggles the hammer is retracted by means of a spring, a weight, or an elastic fluid. The distance of the anvil from the face of the hammer is preferably regulated by means of a wedge or inclined plane, or a screw may in some cases be used. The adjustment of the anvil may be made either automatically or by the workmen by forcing forward the wedge or inclined plane, or by turning the screw, if a screw is used, during the period when the pressure of the hammer is taken off the object being forged or shaped. The framing between the anvil bed and the upper point of abutment of the toggles may consist of strong columns, or where a clear space is desired it may be made of a single block of metal. To avoid rupture of the main framing, Mr. Hargreaves places a breaker at the point where the upper toggle abuts against the framing, or the toggles may be made of such strength as to yield when the strain becomes excessive, and of such form and materials as to be replaced at small cost. For some purposes the hammer may be made to work in a horizontal direction, and the face of the hammer placed in a vertical position.

The Master of the Rolls has appointed Mr. James Waddell official liquidator of the Mutual Society.

* Both Thursday and Friday next (Christmas Day and Bank Holiday) being practically blank days, correspondents will oblige by sending mine reports, and communications generally, intended for next Saturday's Journal, as early as possible.

CAPPER PASS AND SON, BRISTOL,

ARE BUTERS OF
LEAD ASHES, SULPHATE OF LEAD, LEAD SLAGS,
ANTIMONIAL LEAD, COPPER MATTE, TIN ASHES, &c.,
and DROSS or ORES containing
COPPER, LEAD, AND ANTIMONY.

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PURCHASERS OF
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ASHES, TERNE ASHES, AND ALL REFUSE CON-
TAINING TIN AND LEAD.

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MANGANESE, ARSENIC, FLUOR-SPAR, WOLFSPAR, BLENDE, CALA-
MINE, CARBONATE AND SULPHATE OF BARYTES, ANTIMONY ORE,
CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE,
COHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS,
TALC, PHOSPHATE OF LIME, &c.

AUSTRALIAN TIN—PRIZE MEDAL, 1877.

THE UNDERSIGNED IS PREPARED TO EXECUTE
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S. L. BENSUSAN
Kangaroo Tin Works, Sydney, 21st May, 1879.

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Notices to Correspondents.

Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be filed on receipt; if then forms an accumulating useful work of reference.

THE ARGENTINE GOLD MINING COMPANY (Limited).—Can any of your readers inform me as to the present position of this company, which was brought out by the directors some two or three years ago? It was publicly stated that the mine would turn out to be as profitable as the famous St. John del Rey. I can get no information from the office as to whether it is being worked or not.—HENRY CRICKETT (a shareholder).

THE SUPPLEMENTARY SHEET.—We have received occasional complaints, and of late a good many, that the Journal is delivered by country booksellers without the Supplement. Subscribers would oblige us by demanding that the paper should be handed to them complete, as every Journal is accompanied by the Supplement when it leaves our office, and the fault of omission must rest with the country bookseller or their London agent.

IMPORTANT NOTICE—FOREIGN POSTAGE ON THE "MINING JOURNAL."—Under the Universal Postal Convention the postage of the *Mining Journal* to many countries has been greatly reduced as compared with former rates. Henceforth the subscription will be 1*l.* 10*s.* 4*d.* per annum (39 frs.), postage included for the following countries. The amount will, if desired, be collected at the subscriber's residence at the end of each year. The subscription continues until countermanded:—Austria, France, Belgium, Denmark (including Iceland and the Faroe Islands), Egypt, Germany, Gibraltar, Greece, Heligoland, Italy, Luxembourg, Netherlands, Norway, Portugal (including Madeira and the Azores), Roumania, Russia, Serbia, Sweden, Switzerland, United States, Malta, Turkey, Morocco, Tunis, and the Canary Islands. Spain 1*l.* 19*s.* (50 frs.). Subscribers remitting to the office can in most cases avail themselves of the International Postal Money Order system; those in the United States and Germany should advise their remittance by letter, as the Post Office does not give the sender's name.

Received.—"A Loser by Foreign Mines," on Mining in Canada, should append his name to his letter—"N. O. P.": The publication of the letter would subject the parties to much trouble without in any way benefiting the shareholders.—"Wilsend": We do not think so—"Carn Brea": When convenient you can send us some more carefully prepared remarks—"W. N." (Goggin):—"One who knows the District" (Lady Ashburton):—"J. J. S."—"D. W."—"R. J."—"S.": A letter for Mr. George Henwood, if addressed to this office, will be forwarded to him—"M. N. T."—"Shareholder" (Wheat Grenville):—"Delta" (Grampound-road), on the Discovery of Tin at Bugle—J. Barkell, on the Ellipsis Rock-Drill—"R. S." on Deceased Brokers—"Carn Brea," on South Frances.

THE MINING JOURNAL.

Railway and Commercial Gazette.

LONDON, DECEMBER 20, 1879

BELGIAN IRON IN ENGLAND.

We have it on the authority of a large contractor that the iron-works in Belgium are inundated with orders from England. This statement has just been made in connection with the contract for the erection of municipal offices in Leeds, which are to cost more than 50,000*l.*, and we are told that the greater portion, if not the whole, of the wrought-iron and girder work will come from Belgium, and be simply put together by English workmen. It also appears that there are now more iron girders, joists, and channels coming to England from Belgium than ever was the case before, the great difficulty of our merchants being to have their orders completed in even moderate time, so great is the pressure. We have thus the anomaly of the Belgians buying our pig and sending it back to us in a manufactured state. This is anything but pleasant information, and certainly should not be allowed to rest by our ironmasters. There is, therefore, no mistaking the fact that the Belgians, for some descriptions of rolled iron, are able to beat us in our own markets, although they have to pay a considerable amount of sea and railway carriage. The principal reason for this was given not so long since by Mr. THOMAS, the engineer of one of the most important rolling-mills in Belgium, on the occasion of a meeting of the Iron and Steel Institute. He said he found that the old system of two-high mills was far less economical than the three-high, with respect to which he made some important improvements, doing away with all the double collars, and in the casting of the top roll with grooves on one-half of its length only, whilst the remainder was left plain and made conical, or if grooved all along the latter half was destined for use in another train, or if preferred in the same housing by reversing the roll. The bottom roll was also cast with grooves on one half of its length only, the remainder being left taper or conical, or the latter half was done away with altogether. The middle roll carried grooves on one-half of its length, and ridges on the other half, all the grooves that rolled in the same direction being placed next to each other, whilst in the ordinary system the grooves and ridges alternated, the neighbouring grooves rolling alternately in inverse directions, which caused the necessity for the double collars between each groove. The top and bottom rolls, when cast with conical ends, were left quite in the rough on this useless portion, in order to economise cost of material. From the same motive the lower roll was generally cast hollow. In the mill so constructed the bar, ingot, or bloom was first passed through the roughing rolls—first between the middle and bottom roll, then between the middle and top roll, and successively through the others. After this the bar was carried to the finishing train, passing through the several grooves. This mode gave great facilities for rolling of all kinds of profile, angle, T-iron, and rails, no difficulty whatever being experienced in producing lengths 80 ft. in a single heat, without need of flat bars in the piling. Experience, Mr. THOMAS stated, had demonstrated an economy of from 40 to 100 per cent. in the weight of castings needed for the rolls of such mills as compared with the older kind, joined to 50 per cent. of economy in the turning and repairing of the same. The same number of grooves existed as in the ordinary two-roll mills for the same width of housing, so that the three rolls of the system needed to be neither longer nor larger in diameter than those of ordinary two-high mills, so allowing of the easy and economical transformation of two-high into three-high trains, the old rolls being all serviceable.

By the system the number of side guides was reduced one-half as compared with other three-high trains, which along with the comparative lightness of the rolls give increased rapidity in the mounting and changing of the same. The absence of balance guides, too, rendered the rolling of a bar around the roll of much rarer occurrence than formerly. Another consideration was the small space required for the erection of three-high mills as compared with ordinary three-high trains. There was also the weight to be taken into consideration, for where the rolls of an ordinary merchant three-high mill would weigh about 14 tons, by the system alluded to they would only weigh about 7½ tons, or about the same as a common two-high mill. By the working of such mills the economy realised with respect to profile or angle iron was equal to about 1*l.* 12*s.* per ton. This was attributable to the fact that no matter what the profile of the iron might be it was rolled in one heat to a very great length, saving ends, and without any need of bars in piling. Mr. THOMAS remarked that he might have been telling the world at large one of the secrets often asked of how the Belgians managed to undersell the British in their own markets in respect to beams, girders, and profile iron, but he did so on account of the friendship existing between the two nations, and of the generosity shown by various bodies in publishing the results of experience, and their absence of mean jealousy under competition. We think that our ironmasters, however, should profit by the experience of others in their own interest and in that of the British workmen as well, for it appears hard that whilst the iron trade was in a most depressed state, and thousands of our working men entirely idle, at the same time we should have been importing large quantities of manufactured iron from Belgium. This is all the more singular, too, when we come to consider the important fact that there is a duty on all English pig entering Belgium. Yet handicapped so heavily as that country is with the duty on the raw material, and the carriage by sea and railway to English ports and inland towns, the iron rollers in it are able to beat our own even in our greatest iron-making centres, such as Leeds and Sheffield. This is certainly not what one might expect from English experience and enterprise, and it is to be hoped we shall by some necessary changes show to the world that even

in girders, joists, springs, and other iron material we are able to compete with makers in any part of the world.

OUR RAILWAY IRON ABROAD.

The fact is undoubtedly worth noting that in November—for the first time for many months—the United States took a larger quantity of railway iron than was exported by us to any other country. Thus India absorbed 5376 tons of our railway *matériel* in November, but 9357 tons went to the United States. When JONATHAN does anything he never does it by halves; and if the Americans begin to purchase our rails they do so upon a scale which shows that they are a people possessing no ordinary resources. We confess that we are rather surprised—and we certainly are gratified—at the magnitude of our railway exports to the United States in November. We must wait a little longer before we can pronounce a definite opinion upon the subject; but it certainly would seem as if the Americans had been buying our rails upon a rather substantial scale of late, notwithstanding the enormous import duties which have to be overcome by all foreign iron entering the United States. The result of the heavy imports of railway iron into the United States in November is that the United States now rank fourth this year among our external customers for rails and accessories. At the close of November British India ranked first, with an importation of 75,733 tons; British America second, with one of 64,418 tons; Australia third, with one of 53,039 tons; the United States fourth, with one of 37,932 tons; Russia fifth, with one of 37,925 tons; and Italy sixth, with one of 34,756 tons. It seems impossible that the United States can work their way higher up on the list this year; but still it is undoubtedly a remarkable fact that the American demand for our rails has revived to the extent to which it has. The great question is whether this revival in the American demand is speculative or permanent. A few months will decide this question one way or the other.

But while it is a remarkable fact that the United States imported 37,932 tons of our railway iron in the first 11 months of this year, it is none the less a remarkable fact that this revived American importation has exerted little influence upon the foreign and colonial demand for our rails upon the whole. Thus, in the first eleven months of 1878 our exports of railway iron attained an aggregate of 421,883 tons. This was a total representing a period of great and admitted depression; but notwithstanding that some demand has sprung up for our rails on American account in 1879, our railway iron exports for the whole of the 11 months ending Nov. 30 this year only amounted to 427,158 tons. Not even the very cheap rates which prevailed for rails for more than half of this year, not even a revived American demand, have had much effect upon the statistics of our railway iron exports for the current very remarkable year. That prices have been preciously low in the course of this year is abundantly shown by the fact that the value of the railway iron exported from the United Kingdom in the 11 months ending Nov. 30 was computed at 2,663,089*l.*, as compared with 3,169,641*l.* in the corresponding period of 1878. Another rather ominous circumstance in the official statistics which we have endeavoured to analyse is this—in exact proportion as the American demand has improved, and in exact proportion as prices have risen, the general external demand for our railway iron has languished. In November, for instance, our aggregate exports of railway iron in all directions were only 34,987 tons, while in November, 1878, they amounted to 30,286 tons. A small progress was certainly observable in November, but it was less than the increase in the American demand; in fact, we sent much less railway *matériel* to Russia, British India, and Australasia in November, 1879, than we exported in the same directions in November, 1878.

THE PRODUCTION OF SIEMENS' STEEL.

It is stated on good authority that two of the largest ironmaking companies in the North of England are about to commence the manufacture of steel plates by the Siemens' process. This plainly shows what we recently pointed out to be correct—that for shipbuilding purposes steel plates were likely to supersede those made of iron. Up to the present time the plates of steel required for the vessels and boilers made on the Tees and West Hartlepool have been constructed in Scotland by the Siemens' system, but now there will be sufficient made to meet at least all local requirements at no great distance from the shipbuilding yards, so that a considerable saving in carriage alone will be effected. By means of the regenerative furnace of Dr. SIEMENS it may be said that a quality of steel is produced suitable for rails, sheets, plates, hoops, wire, &c., whilst the plant at present laid down in different parts of the country is equal to the production of about 300,000 tons per annum. Dr. SIEMENS has also introduced the direct process, by which he states that iron or steel of very high quality can be produced from ores not superior to the Cleveland ironstone. This is accomplished by means of rotary furnaces in which balls are formed, which are placed under a shingling hammer and beaten out into flat cakes not exceeding 1 in. in thickness. These are cut into pieces and formed into blooms of about 2 cwt. each, which are consolidated under a shingling hammer and rolled into bars. In the making of steel by the Siemens' process, if the ores were good, 5 or 6 tons, with the fluxing material and carbonaceous matter, were put on the bed of an open hearth or regenerative gas furnace, when heat was applied to the mixture for several hours until a thick crust of metallic iron was formed all over the surface. After that pig-iron in the proportion of 25 or 30 per cent. of the amount of iron in the ore was added on the surface, so that the pig as it melted acted upon the crust of metallic iron formed in the furnace, melting it gradually, and constituting with it a bath of steel, which after being adjusted and mixed with a certain amount of manganese material was tapped into ingots, and was then ready for being worked in the usual manner. The ore was consequently not touched from the time it was put into the furnace until it was tapped and drawn off as liquid steel. In the case of poor and impure ores in making steel it would be necessary to eliminate the earthy matter, sulphur, and phosphorus at a low temperature, and then remelt the material at a high temperature. In that case, however, the metal was in a condition to be transferred either to the reheating furnace to be worked up into wrought-iron, or into the bath or open hearth furnace to be converted into steel.

Experiments that have been made have proved in a most satisfactory manner that Cleveland pig-iron when puddled carefully in a rotative furnace produced a very good quality of steel. The Cramp-ton puddling furnace, in the first instance, and then the Siemens' open-hearth furnace, had given excellent results. This we believe will be the system adopted at the works in the North of England, where steel plate-making is about to be commenced. One of these establishments—that of the Consett Iron Company—is about the largest in Durham, and has not only furnaces but collieries, limestone quarries, and ironstone mines in Cleveland, and also hematite ore mines at Bilbao, in Spain, the produce of which is mixed with the local stone—so that there is all the material for the making of steel belonging to the said company. As a new industry is about to be commenced in connection with the Cleveland iron-making a brief notice of the works where the initiative has been taken in the making of steel by the Siemens process may not be out of place. The Consett Company was started in 1864, with a capital of 400,000*l.*, having purchased the plant, works, and royalties from the Derwent Iron Company. There are six blast-furnaces, each capable of turning out about 500 tons of pig per week; but during last year there were only four of these in blast. There are also 167 puddling-furnaces, and seven rolling-mills, with two forge engines, five steam hammers, and all the usual forge appliances. The blast-furnaces are arranged in a single row, fitted with Whitwell's patent fire-brick hot-blast stoves. There are about 150 coke-ovens, of the ordinary bee-hive type, and the waste heat from them is utilised to raise steam for two cylindrical boilers. The boilers are connected with a winding-engine, with which a drum is attached for moving the apparatus employed to raise the coal to the level of the coke-ovens after the former has been screened in the usual manner. The company has been noted for its iron plates, and from the works as much as 1200 tons have been turned out weekly, as well as 800 tons of iron rails. The company own several collieries in the county

of Durham, including the Black Hill Drift, Langley Park, Medomsley, Westwood, &c. With all the appliances at hand, and the requisite material at first hand, the new branch of trade commenced by the Consett Company gives every promise of being in the highest degree successful.

THE ROYAL SCHOOL OF MINES.

The seventh annual dinner of this School took place on Wednesday at the Criterion Restaurant, Mr. F. H. Delabère May in the chair. The company numbered about 150, and included Profs. Huxley, Frankland, Guthrie, Ramsay, Etheridge, and Stokes; Sir Julius Vogel, Mr. Edward Matthey, Mr. Rudler, Mr. A. T. Phillips, &c. In proposing the toast of "The Queen," the Chairman observed that the Prince Consort was the founder and chief promoter of the institution to which they were proud to belong. The Chairman then gave "The Prince and Princess of Wales," expressing a hope that his Royal Highness would long live to take an interest in mining and metallurgical prosperity. In proposing the toast of the evening, he observed that the Royal School of Mines had special objects entirely distinct from those of the School of Science and Art at South Kensington, and insisted that it ought to be maintained in its integrity. It was, he said, a thing quite apart; and on behalf of the students he protested against the way in which its interests were disregarded at South Kensington, and against the project of merging it in the general scheme of scientific education there. The South Kensington scheme was too wide and general in its scope to give the particular training required by those who wished to adopt mining and metallurgy as their profession; and if the present arrangements were persisted in, students who paid for their instruction would have to go where their interests were better consulted. South Kensington, however, propped up by State aid, would become effete. (Cheers.) He concluded by proposing, amid hearty cheers, "Unity, independence, and long life to the Royal School of Mines."

Prof. Guthrie, whose name was coupled with the toast, said miners were, he believed, notoriously a straight-forward race of men, sometimes calling a spade a spade, sometimes even calling it a dirty shovel—(laughter)—but he ventured to dissent from some of the sentiments expressed by the Chairman. He did not think the interests of the miners were likely to be neglected. Mr. May had dwelt eloquently on the so-called difference between what was termed "South Kensington" and what was known as "The School of Mines." Those two expressions were not geographical, but educational. A man was as much as a thoroughly a student in the School of Mines whether his instruction were received at South Kensington or in Jermyn-street. Anyone who was acquainted with the curricula of foreign universities—and especially of Germany—must know that students had to go from one end of the country to another to receive instruction. It was rarely that the whole educational system was carried on under the same roof. He must protest against any exaggeration of the opposing intentions which might have existed, or might now exist, between the different sites of instruction. He believed the interests of mining students would never be neglected. Wherever the instruction was given they should cling to each other, with the *esprit de corps* which became miners, and should remember that the sentiment of locality might be pushed too far. (Cheers.) In concluding the Professor bore strong testimony to the merits of the late Registrar of the School of Mines, Mr. Trenham Reeks.—The other toasts included "The Professors," responded to by Prof. Guthrie; "The Geological Survey and the Director-General," proposed by Mr. Rudler, and responded to by Prof. Ramsay, who said that he opposed the change which had been censured as long as it was in his power, but that it was no use keeping up an old thing when the mass had gone to a new place, and that it would be well to yield with a good grace.

SOCIETY OF ENGINEERS.—A party of the members of this society and their friends met at dinner on Wednesday at the Guildhall Tavern. Mr. Robert Paulson Spice, C.E., president, was in the chair, accompanied by Mr. J. Bernays, president-elect for 1880; Mr. C. Horsley; Mr. A. Williams, honorary secretary; Colonel Cowan; Prof. Glaisher, F.R.S.; Mr. Littler, Q.C.; Mr. P. F. Nurse; Mr. A. Elgar. The society, established in 1854, consists of about 400 members practising in or connected with the engineering profession, and is intended for the advancement of engineering science and practice. At the monthly meetings in the hall, at 6, Westminster Chambers, papers are read, and on occasions, visits are paid to works of engineering interest. Among the honorary members are the Astronomer Royal, Dr. Lyon Playfair, Prof. Pole, Dr. Siemens, Sir Joseph Whitworth, Prof. J. C. Adams, Sir H. Bessemer, Dr. Percy, and Mr. E. J. Reed, C.B., M.P. In the course of speeches on the regular toasts, the Chairman remarked upon the grave situation of military affairs in Afghanistan. With respect to the Society of Engineers, he observed that it was an educational institution of no mean order. It had done a great and good work, and had an important future before it. A special feature of the occasion was the presentation of an illuminated address, a piece of plate, and a sum of 150 sovereigns to Mr. Perry Fairfax Nurse, ex-secretary, and for many years intimately identified with the progress of the society. Mr. Nurse, on receiving the gift, made a most feeling and appreciative acknowledgment. Various complimentary toasts followed. Musical selections were given in the course of the evening, under the direction of Mr. Montem Smith, by Mr. E. W. Collins, Mr. G. T. Carter, Mr. J. Vitt, and Mr. Chaplin Henry.

DARLINGTON'S ROCK-DRILL.—The following is an extract from the South Australian Advertiser of Nov. 3:—Darlington's Rock Boring Machine has been successfully introduced at the Moonta Mines in connection with Taylor's shaft, which is now down somewhat below the 180 fm. level. At first (the Wallaroo Times states) some difficulty was experienced in getting the apparatus into efficient working order, which, to a certain extent, was owing to the flinty character of the rock; but by increased experience considerable success has been achieved. The sinking of the shaft has been expedited quite double what it would have been by hand labour; and when it is considered that this result has been obtained in rock of such extreme hardness it demonstrates the great value of this boring machinery in facilitating mining operations.

THE GUNPOWDER EXPLOSION AT PENTRE BROUGHTON, WREXHAM.—The report of Major A. Ford, R.A., Government Inspector of Explosives, has just been issued. The explosion occurred on Oct. 30, killed two people, and injured an old woman, who seems to have set the Explosives Act at defiance. The old woman's husband, Howard, was killed three years ago; he held a petty sessions licence, dated January, 1874, to store an unlimited quantity of explosives, if not manufactured, on the premises. At his death a continuing license was refused; and it seems that, although frequently cautioned by the inspectors, no new license was obtained, and the sale and manufacture was surreptitiously carried on thereafter. On the evening of the day in question the old woman's niece and the man who managed the powder business appear to have been filling blasting cartridges in a kitchen, with a fire and candle burning, when the explosion occurred. The niece and John Kelly were killed, the old woman being, unfortunately, outside, and merely getting injured with the falling roof. At the inquest Edward Ellis, farmer, of King's Mill, Wrexham, "would say nothing against Mrs. Howard," and declined to repeat evidence which he had given to the police superintendent previously, and which might have thrown light on the subject. Major Ford, in concluding his report, says that while it is evident that the responsibility for this occurrence rests primarily upon Mrs. Howard, he should be imperfectly discharging his duty where he pointedly to call attention to the grave neglect of the local authority (the Justices of the Bromfield Petty Sessions Division) to enforce the provisions of the Act within their jurisdiction, and to cause a vigilant supervision to be exercised as to its observance. It will be seen from what has been already stated that their attention has repeatedly been drawn to the illegal and dangerous state of things prevailing in their division, and a prosecution as before mentioned was instituted by the Secretary of State against one influential company in the district. The continued irregular storage of gunpowder by Mrs. Howard has more than once been pointed out to the justices without any satisfactory result, for instead of the illicit traffic having been altogether stopped, as might have been hoped, it was merely re-

moved to another site. Indeed, so negligent has been the administration of this statute in this district that the Brymbo Company, who were refused a renewal of their store license of April last, nevertheless have actually ventured to continue to use the building for keeping gunpowder without any license at all, in defiance of the local authority, and have done so with impunity up to the date of Major Ford's visit on Nov. 12.

NEW PATENT SAFETY LAMP.—The new safety lamp invented by Mr. W. PURDY, of Eastwood, Notts, appears to be now attracting some attention. It is stated that it gives an excellent light, and will stand a greater current of air than any other, yet the flame cannot by any means be drawn or propelled through the lamp, and the light is instantly extinguished when brought in contact with an explosive mixture. It is claimed, moreover, that the flame never passes into the dome to overheat the lamp or cause it to be red-hot, that it is self-locking, and that the accidents to which a safety-lamp is always liable neither extinguish the light nor endanger the mine.

REPORT FROM CORNWALL.

Dec. 18.—We are now only a week from Christmas, and, so far as business is concerned, we might almost as well call it Christmas at once. The share market is dull, few shares offering, and prices rule somewhat lower, in all of which—not even in the last drop of 2½ in the standards—we have no more than is to be expected as the natural result of the season, bearing out our forecast of probabilities. Prospects, however, continue quite as good as they were, and nothing would surprise us less than to see a fresh start made immediately the holidays are over. There is a lull, but no reaction.

There is little to comment upon as regards individual mines, but as to South Crofty it is perhaps quite as much as should be expected that the call should be a little in excess of the loss on the four months. There should certainly be no going back in such a concern financially, but when that is fairly secured it seems a little too much to expect that a body of adventurers, who have had to make such sacrifices as those in South Crofty have had to do, should not be allowed to leave something to the future. The prospects are decidedly improving, due chiefly to the boring-machine. Moreover, it was asserted at the account, on the authority of Mr. Henderson, that there had been no encroachment on East Pool. These dialling disputes are not always creditable, and are always, more or less, unpleasant to the parties directly concerned; but at least they may be taken as satisfactory in a certain wide general sense. They indicate that mining is active, if not precisely that it is prosperous, though activity and prosperity in these matters commonly go together. When there is nothing of value to quarrel about you never hear of a dispute in dialling, and the converse holds quite as true.

Our copper mines are having their quota of prosperity as well as our tin, and now the lead are following suit. There ought to be good things in store for West Chiverton, as there certainly are for Herodsfoot, which seems to have taken a new lease of life. It is a very melancholy outlook, however, in the once famous Menheniot and St. Ives district, which we traversed the other day, to see the wrecks of once gigantic concerns, and to know that some of these results at all events might have been averted but for the determination of a mineral lord to do what he liked with his own in the sense of doing nothing. The land laws have come in for a good deal of sharp criticism of late, but it is not only agriculture that is affected by them. Can a will hold good which binds down a legatee never to grant a mine set on his estate? Is not such a condition void on the score of opposition to the public interest?

Every week we hear of new ventures, none the worse that many of them take the shape of re-working old concerns. Such is the starting anew of Great Work, which we hope will not only prove an individual success, but be the pioneer of the revival of mining in Breage. We cannot, indeed, believe that the once famous Helston district, low as it has sunk of late, has sunk below substantial recovery. There is good news, too, from the central district, that of which St. Austell may be regarded as the centre, and which once comprised such famous mines as Polgooth, Hewas, Par, and Powey Consols, Charleston United, and many other productive concerns, and which still have in Wheal Eliza one of the most profitable tin mines in the county. We noted the other day the general character of the late discoveries at Roche. What appears to be a very valuable tin lode has just been cut near St. Blazey, between Par and Fowey Consols—7 ft. wide, and very "kindly." Several new concerns are talked of in the district, and one of the most promising appears to be West Polgooth. From the north of the county we hear that the Perran Iron Mines are at length actually out of the hands of the bailiffs, and that the expectations entertained when Mr. Roebuck bought them are about to be realised by their being immediately set at work. The inspiring influences extend right away to the Tamar, and it is to be hoped will lead to some satisfactory results in what, it must be confessed, with a few brilliant exceptions, has hitherto been a rather disappointing district—that around Kit Hill. We have all heard the proverb—

"Hingston Hill, well wrought,

Is worth London town dear bought."

But there certainly appears to have been a good deal of misfortune in the working of this highly mineralised and really valuable tract hitherto.

We wish we could see more life in mining matters in Devon. At present the Tavistock district appears to monopolise attention and energy, and though it is well worthy of all the time and money now being spent upon it, as a recent visit shows, there really is no reason why it should stand thus alone. Setting aside the outlying localities of Combmartin and North Molton, and of the Brendon Hills (which, of course, are in Somerset), all of which are worthy of attention, Dartmoor is literally girdled by the evidences of former mineral workings, and dotted with ancient mines and stream works. The days of the latter have gone by, but surely there must be many a lode that would pay for working, and that handsomely, in this much neglected area. We shall return to this particular matter ere long. Meanwhile we throw out the hint.

There is still work for the Miners' Distress Committee, and at a meeting on Monday they made several grants, covering the whole mining area of the county, and amounting in the aggregate to a considerable sum. Miners' wages have been raised pretty generally all over the large mines, but there are still a few exceptions; and, moreover, a good many of the men who have recently been taken on have been and are pinched by having to wait two months for their money. This might surely, however, be met in a good many cases by advances by way of loan. Mr. Pendarves, the chairman of the committee, in explaining the present position of the fund and the claims upon it, stated that at the previous meeting they had a balance in hand of 2049l. Since that sundry items had been received and payments made, leaving a cash balance in hand of 2101l. 18s. 3d. There was the sum of 2000l. in Messrs. Bolitho's hands, which he had been instructed to invest, but the funds had been very high, and he thought it better to postpone the investment until they were lower. The state of the county generally was that although the times had considerably improved there was still existing a great deal of hardship and distress—not so much from people being out of work but probably because wages were low, and he was afraid the miner generally had not yet participated in the advance in the price of tin. No doubt adventurers had sustained great losses. They had been put to great expense, and the managers of mines had had to put their pitwork and other plant in order, and probably had not been able yet to raise the miners' wages. He believed in some cases the miners' wages had been increased, but in many instances they had not. But he was sorry to say that the price of flour had increased, and as a large quantity of this was used in a family an advance of 10s. 1d., which he believed had been paid, was a considerable item in miners' wages. Moreover, another difficulty was that the miners put to work recently in the mines got nothing for the first two months, and were as badly off during that period as if out of work. The Chairman pointed out the desirability of voting a sum of money to supply miners and their families with suitable clothing, which was largely needed, and also recommended that grants should be made to subsidise existing blanket societies and soup kitchens where aid was needed. In effect these recommendations were embodied in the grants made.

The Mining Institute has again had the subject of improved tin dressing under consideration, this time in connection with a suggestive paper by Capt. Oats, formerly of St. Just, now of the diamond fields, read on his behalf by Dr. Foster. Capt. Oats's chief proposals were preliminary, designed to arrive at the comparative efficiency of various dressing-floors and modes of operation. To this end he suggested that a commission should be constituted to take evidence throughout the country, and that mineowners and agents should be solicited to afford all the assistance they could render towards the prosecution of the enquiry. The Commission might take steps to ascertain to what extent, if any, the actual returns from the stamping-mill varied from what was indicated by the assay of the vanner—taking, of course, dry tin for comparison; the nature and quality of the assays made by each respective vanner, as compared with a normal assay made by some well recognised practitioner; the produce and quality of the tin ore collected from the vanning assays, compared with that of similar ore obtained from the stamping-mill; and, further, the difference in each case which was found to exist between the assay of the vanner and a proper chemical analysis of the sample. Where the assays in a mine were carried on under certain data which might be considered empirical, steps should be taken for comparing the results with more regular and exact data, and to convert many of their arbitrary regulations into intelligible figures for the purpose of comparison between the vanner and the dressing-floors. It was answered that all their large mines took pains to ascertain exactly the quantity of stuff put to the stamping-mills, and to extract fair samples from suitable quantities. In some instances this might be done in a rough manner for the sake of economy, but even in this case, if the intention was to act fairly, the aggregate would, doubtless, be fairly correct, when individual samples, perhaps, might not be. The commission should consist of practical men, having full knowledge of the systems and appliances in use in tin dressing, and of at least an equal number of scientists. It might be desirable to determine experimentally several questions, such, for instance, as the comparative efficiency of the flash and grate systems of discharge from the stamps when stuffs of similar kinds and quality were treated. It might be discovered that a larger percentage of tin ore was lost when stuff of from 2 to 4 per cent. was treated than in the case of richer quality, (say) from 20 to 40 per cent. If such was the case experiment might show to what extent the ore might be concentrated by crushing and jigging, previous to being sent to the stamping-mill, into two or more qualities, one comparatively rich, and the other poor; and after that whether or not some system of grinding would not be more efficient than stamping, especially where the principle of discharge should give equal facility of discharge to particles of higher specific gravity as compared with those of lower, like that of Dingey's pulveriser, for instance; and, lastly, whether or not the principle of jigging could, in some form or other, be carried out to a greater extent in tin dressing floors.

There can be no doubt whatever that the conduct of such an enquiry would be of great practical value, but it is not at all certain that the end may not be answered by other less formidable and expensive means, especially as the President, Capt. Teague, pointed out that a series of experiments were to be conducted as to the relative efficiency of the frame and the buddle. At any rate, this was rather the view taken by the majority of those present at the reading, and it will be very well understood that with an Explosive Commission at work, &c., it is undesirable to load mining enterprise with too many extra charges just at present; still, this question of tin dressing is one of the first importance, and that this importance was quite recognised was apparent all through the discussion. Most of those present naturally turned their thoughts to the Red River. Probably with all the care that may be taken the Red River will still produce some results; but whether frames or buddles are to be regarded as the best, or whether jigging is to be the main operation of the future, there is no doubt whatever, as Capt. Rich, J. Thomas, A. James, and others agreed, that the use of clean water and the extension of floors would be found to pay, and that handsomely. "Sizing" is another very important point, as Capt. Teague pointed out, but that involves a very difficult investigation. Possibly the solution here may be found in the adoption of improved means of reduction. The old stamps are very useful—rough and ready—machinery, but they practically admit of no discrimination; and sooner or later they will be doomed. We quite believe with the President that the next two years will see a great advance in tin dressing; but it will be, partially at least, by the development of new methods, as well as by the improvement of old ones. Again, there is a marked—we had almost said a disgraceful—difference between the efficiency of various floors now in work.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Dec. 17.—In Derbyshire mining operations have become more active than they were even a comparatively short time since. This remark, however, applies more particularly to coal mining, although some of the lead mines have been working tolerably well. But, for some reason or other, the production of lead ore does not seem to increase, the active business being still in a few hands. In both the southern and northern portions of the county the collieries have been working very well, there having of late been a brisk demand for house coal. The demand for London in particular has been most active; but prices have not advanced as might have been expected, so that profits, if made at all, must be infinitesimally small. Prices of the best qualities of coal to the London consumer are still but 25s. per ton, and Silksstones 23s. In steam coal the demand has in no way improved; but there is every probability that early in the New Year some more furnaces will be put in blast, so that there will be an increase in the consumption. There is a large output of coke, which sells freely, a good deal being taken by the Sheffield manufacturers of iron and steel. Pig-iron has been in rather active request, so that stocks are not allowed to accumulate, a considerable quantity going into Staffordshire, as well as into the Sheffield district. At Codnor Park the mills have become busier, greatly to the advantage of puddlers and mill-men, whilst more is being done at Denby. Merchant iron now sells more freely than for some time past, and rates have gone up. At the foundries also affairs are better, but at some of them there is still room for improvement.

During the last fortnight Sheffield has been in quite a state of unusual excitement, but not with respect to the marked revival of trade, which has changed in a marked degree the social position of many thousands of workmen, but owing to the election of a member to fill the place of the late Mr. Roebuck. Most of the meetings, however, have been held at times when the men have left off work, so that there has been no loss to masters or workmen. The heavy branches of trade, in particular, are very brisk, and the output of the mills is heavy. Armour plates for our own Government have been extensively produced, as well as those steel-faced for some vessels for foreign powers. Plates were scarcely ever in such good request as at present, more especially those for shipbuilding, whilst of late there has grown up an active demand for steel-plates for the same purpose. Boiler-plates, sheets, and hoop-iron, have also been in steady demand. The Bessemer department keeps up well, and large quantities are being made of various qualities for different purposes; but rails appear to absorb the largest portion, whilst the mills engaged on them are as busy as ever. Engineers and machinists, who have had a long season of quietness, are now considerably better off, and more is also being done at some of the leading foundries. Makers of almost every description of cutlery have received some extensive orders from America, Australia, and other of our colonies. The frost has been quite a godsend to skate-makers, and one firm alone, it is said, have been selling at the rate of 10,000 pairs a week. German and American skates, however, which are sold at a much less cost than the English, have sold freely. At the collieries in the district business has been such as to find full employment for the miners, the demand being principally for house coal, and large quantities have been forwarded to London and the South by the Midland and Great Northern Railway Companies.

Most of the disputes at the collieries have been settled, but at two places the men are still out. At the Nunnery Colliery the owners have returned the 5 per cent. reduction they submitted to some time since. At the Birley Silksstone pits, where something like 1000 men

and boys have been on strike for several weeks, several attempts have been made to arrive at a settlement, but so far without success. The workmen at the Monk Bretton Colliery, near Barnsley, are still out, as they have refused to accept the proposed scale of prices, which they say in many instances would be equal to a reduction of 20 per cent. on the wages previously paid.

In Leeds and the district more is being done at the various works, and some large orders are in hand for locomotives and general machinery, whilst the tool trade is also tolerably good. The collieries in the neighbourhood of Wakefield and Normanton have been turning out a heavy tonnage of coal, and a good deal is being sent from the New Sharlstone to the Metropolis. The Hull trade has also been well maintained.

Report speaks favourably of the new safety-lamp brought out by Mr. Purdy, an underground deputy at Eastwood. One of the chief merits of the lamp is that it is self-locking, and can only be opened by means of an air-pump. It is understood that the lamp will be brought under the notice of the Derbyshire and Chesterfield Institute of Mining, Mechanical, and Civil Engineers at the next meeting.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Dec. 18.—The coal trade on the Cannock Chase side of the district is this week unsettled by reason of the conduct of the colliers in pressing their claim for an advance in wages amounting in some cases to as much as 20 per cent. Wages in the district, as well as in the South Staffordshire district proper, are regulated by a sliding scale, which came into operation in April last under the award of Mr. Joseph Chamberlain, M.P., which provides that any change in wages shall follow an alteration in the price of coal. The necessary rise has not taken place in coal, and the employers are determined to enforce the agreement. They have resolved that unless the men withdraw their notice before the end of this week a fortnight's notice shall be given to close all the pits. In the face of this resolution there are some hopes that the operatives will give way. The men would be altogether pursuing the wisest course if they should withdraw their notice, seeing that it is pretty certain that Cannock Chase coal will be declared up probably 2s. per ton early in the New Year, which will entitle them to a rise. Ironstone, alike native and foreign, is in large request, and some heavy sales are taking place.

At the meetings of the trade yesterday and to-day pig-iron could have been sold much more freely than it was if vendors would only have executed the contracts for forward delivery which buyers wished to place. The instances were few, however, in which sellers would consent to book large contracts. Production continues to increase and Messrs. Solly and Co. (Limited), and the Willenhall furnaces, who since the revival have re-lighted one of their furnaces, except in another week to have their second blowing. Prices of all-mine native pigs were strong in sympathy with hematites. The agent for Northampton pigs quoted 70s. as his price, and some Derbyshire makers not wishing to do business quoted 80s. These prices were an advance of 5s. on the week. At the finished ironworks the execution of orders is being pressed forward preparatory to the plant being laid idle for the Christmas holidays. Prices continue upward, and 11½ 10s. for sheets of 24 w.g., with 13½ for lattens, was the lowest price at which orders could be placed for this description of iron for delivery into next quarter. The better advices by this week's Australian mail have induced the galvanisers to advance sheets a further 1½ per ton. The quotation of the chief makers for 24 w.g. packed in felt delivered is now 19½ 10s.

In North Staffordshire trade is still improving. The coalowners on Tuesday had an interview with a deputation of colliers at Stoke-on-Trent, and conceded the advance of 10 per cent. in wages, the rise to take effect at the termination of the notice, which had been given by the men on the first following making-up day at the various collieries. The committee of traders which have been appointed by a general meeting of the traders of North Staffordshire to come to some terms with the North Staffordshire Railway Company touching the rates for mineral carriage have again met the directors this week, and proposals made by the committee and by the company respectively were discussed at some length. Ultimately arrangements were come to which will be laid before a general meeting of the traders, which it is believed will be deemed satisfactory.

Mr. John Skidmore, a certificated manager of Lord Dudley's Saltwell Colliery, was charged at the Dudley Police Court, on Saturday, with infringing the 16th general rule of the Act of Parliament. It was pleaded in his favour that the responsibility of a certificated manager was terrible, but the law imposed this responsibility. The Bench held that Mr. Skidmore should have seen his orders carried out, and fined him 5l. A notice of appeal was given.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Dec. 17.—Resuming our journey along the Cambrian Railway at Welshpool, we pass for several miles through a country possessing little mineralogical interest. The first signs of mining life are discernible at Montgomery Station in the heaps of barytes, white and glistening, lying in the station yard. These have been brought from Wotherton, four or five miles to the north-east, where two mines have been worked for this mineral for many years, their united produce last year being 2517 tons. The mines are worked in the upper part of the Lower Silurian strata, running up into which the ordinary lodes of the district cease to be productive of lead, and are filled mainly with sulphate of barytes, with strings and layers of carbonate of lime branching through them, the whole mass being in places plentifully sprinkled with iron pyrites and also with copper pyrites, one of the mines selling 325 tons of this ore of copper last year. The principal lode is wide, and affords plenty of mineral to cut at. From Montgomery to Caersws, above Newtown, the railway follows the junction of the Lower with the Upper Silurian strata, and there are no mines or quarries in this unproductive ground. At Caersws we are at the junction of the little railway that unites the Van or Yr Fan Lead Mine with the main line. This important mine is situated about six miles to the south. The lode on which the mine is worked is a monster one, ranging in width from 12 to 80 ft. It has a W.S.W. by E.N.E. direction, and it has been followed for a distance of about five miles, but excepting the Van no mine has hitherto been worked profitably upon it. It cannot be said to be a rich lode, but there is plenty of it to work at, and the ground is not expensive to work. The ore as it is tipped over the grate looks poor enough, and the late Capt. Williams assured me that he had seen in Yorkshire an abundance of ore thrown away quite equal to the average quality of his ore. A visit to the mine and the dressing sheds will repay any one interested in mining. Further to the south-west there are several parallel lodes to the Van, which have been worked with varying success. Explorations have been made upon the Van lode at different times since early in the present century, but it was not until the year 1862 that after twelve years search the lode was struck in a productive state by the late Capt. Williams.

From Caersws we ascend by the side of the River Carno until we reach the highest point of the line in the great cutting of Talerddig. This cutting passes through what seems to be the southern equivalent of the Bala limestone, which here is marked by the absence of lime. It consists of beds of hard stone, interstratified with shale, on the bedding of which are some good impressions of ancient wave lines. As we begin to descend towards Llanbrynmair we see a nice example of a natural arch or anticlinal ridge of strata on our left hand, and from this point the Lower Silurian dip under a capping of Upper Silurian rocks, to emerge again as we draw near to the village of Llanbrynmair. From the station we look up a valley to the south, which is famous for the lead mines that have been and are worked up its tributary Glynns and Cwns. About three miles up are the mines grouped about Pennant, and about six miles up is the noted mine of Dyliffe. There are three lodes at this mine. In its best days the workings of the mine were on the old main lode. This was lost, and by the former company was not found. I do not know that it has yet been found, but I should be glad to hear that it has; it ought to be. From this point westward to the shores of Cardigan Bay the strata undulate in troughs and ridges, of each of which there are about five. It is along the ridges in their extension south-westward that the best mines are

worked, and it is where in these ridges the older underlying strata of the district are thrown up near the surface that the most indications of copper ore are found. From the next station (Cemmaes-road) a short railway leads up to the mountain village of Dinas Mawddwy. It is a pity when the line was made it was not carried onward a few miles to Llanymawddwy, where there is an important sulphur or pyrites bed which formerly before pyrites could be obtained so cheaply from Spain was profitably worked, as I think it could now if it possessed cheap carriage. At Dinas Mawddwy we are at the north-east end of the Corris slate district, as evidenced by two extensive quarries. More slabs than slates are, however, made from this end of the district, owing to the hardening of the beds in this direction. After Cemmaes-road we reach Machynlleth, and here are abundant signs of an extensive slate trade, slates and slabs being stacked along the line, which have been brought by the 2-ft. gauge tramway from the quarries lying a few miles to the north in the hills about Corris. Another stage will bring us to Aberystwith and the sea.

TRADE OF THE TYNE AND WEAR.

Dec. 18.—The Steam Coal Trade continues to improve in this district. The demand for Northumberland coal on the Continent increases, but of course this old trade, which has revived so much of late, may be interrupted during the winter by ice in the eastern ports. Prices, on the whole, are advancing, though but slowly, and the coal trade in this respect shows a great contrast to the iron trade, as prices in the latter trade are advancing rapidly. This, however, is accounted for by the fact that many old pits have been re-opened and the output increased. The output of steam coal at most of the large works has been great; at Cambois the Model Steam Coal Colliery in the district 8000 tons of best coal was worked last week, and the output at Cowpen, Bedlington, Broomhill, and most of the works was large. The shipment of coal at Blyth and at the rising port of Amble is rapidly increasing. It is confidently expected that the coal trade will improve in the spring. Coke has risen more in value than raw coal. The rapid improvement in the iron trade has acted favourably on the coke trade; but as a great portion of the coke produced has been contracted for previously the advance of price is not obtained generally at once. Twenty years ago the production of coke in Durham was about 2,000,000 tons, but this has been rapidly increased to meet the requirements of the iron trade, and in the year when the Cleveland iron trade reached its maximum the production of coke was estimated at 5,000,000 tons; this has since then suffered a declension, but it is now weekly rising, and the production next year may be confidently expected to exceed any previous output, as blast-furnaces are being blown in rapidly. The bulk of this coke is consumed in Cleveland, but a large quantity is also sent to the West Coast and to Lincolnshire, and to other localities. Coke is also exported to a certain extent. Coke has risen in price 2s. per ton, but contracts are still running at old prices; as these run out prices will no doubt rapidly advance. In 1874 only a limited quantity of coke was for sale in the market, as many long contracts were in existence, and this coke rose from 10s. to 45s. per ton. The London house coal trade from this district is in a very bad state, although this coal realises about 25s. per ton, that is—this price is paid by the consumers there—scarcely 14s. per ton is realised for the coal on board ship in the Thames. This anomalous state of affairs, it is hoped, will not be allowed to continue much longer, as the northern colliery owners are now making great exertions to provide a remedy. The adjourned meeting of the northern colliery owners to consider the condition of the sea-borne house coal trade in London was held on Saturday at Morley's Hotel, and at the conclusion of the proceedings the matter was referred to the decision of the Durham Coal Owners' Association, at Newcastle-on-Tyne.

At Messrs. Dickinson's Colliery, in the Consett district, a difficulty has occurred owing to the owners having withdrawn the houses allowed to the men. At Heworth Colliery the houses are also a matter of dispute, the owners having offered the men 3l. per annum, the men to find houses for their use instead of the masters renting houses for the men, as has been the custom heretofore. At Whitburn the second shaft is being sunk through the limestone by the Cardon system, and when this is accomplished both shafts will be sunk rapidly through the shales to the coal seams. At Castle Eden Colliery the heavy feeders of water met with have fallen off considerably, and it is expected that the works will be fully reinstated shortly. At Murton Colliery, where the water burst in, owing to the fracture of the metal tubing, part of the works have been got to work again and the whole of the men will be employed by working night and day shifts.

The improvement at the ironworks, engineworks, and foundries is very marked. Many of them are getting into good working order. Large contracts have been secured by Hawkes and Co., of Gateshead, for chains, bridges, &c., and most of the large works have got orders which will keep them busy during a considerable part of the ensuing year. At Abbott's large works at Gateshead a considerable amount of work of various kinds has been secured. By Messrs. Black, Hawthorn, and Co., orders have been received for a number of locomotives and marine engines, and also other work. At the works on the north side of the river considerable orders have also been received. Foundries are much better employed than they were a short time ago. Iron ship-building was much checked by the late severe frost, but full work at most of the yards has been resumed.

Mr. Philipson, the Town Clerk of Newcastle, died on Tuesday, at the age of 80 years. He was a very able and prominent man in the district, an able judge in large practice; he was also closely connected with commercial and mining affairs. He was formerly a partner in several collieries, but some of them did not prove profitable. His son, Mr. Helton Philipson, is an active partner in the Harton and other collieries, and he is also one of the partners in the new winning now in progress at Whitburn.

The Iron Trade has been rather quiet during the past week, but the late rise in price has been well maintained. Makers ask 46s. 6d. (No 3) for delivery over the first quarter of next year. The shipments have been heavy. The manufactured iron trade is scarcely so strong. There is a fair demand for plates, but the pressure is not so strong. Through the reconstruction of many companies the production of pig and manufactured iron will be greatly increased shortly. Plates are 8l.; bars, 6l. 17s. 6d.

There was a large attendance on 'Change at Middlesborough on Tuesday. There was very little alteration in the condition of trade. Following in the track of Glasgow, the market was a shade weaker, the prices being based on No. 3 Cleveland pig, selling by merchants at 43s. 9d. per ton for prompt delivery; makers, however, adhere to 45s. for immediate delivery, and for the first six months of next year they still quoted 50s., although some firms were said to be doing business at 47s. 6d. and 48s. It was found that Messrs. Connal and Co., the warrant storekeepers, had a stock of 96,750 tons at Middlesborough. They are receiving about 200 tons daily, and are delivering about 100 tons. Their Glasgow stock stands at 406,550 tons, and they are receiving something like 1200 tons daily. There continues to be a good demand for iron of all descriptions. In the course of a few weeks more blast-furnaces will be blown in. In the Cleveland district the work of reconstruction is receiving very close attention. In addition to the proposals for reconstructing the affairs of Messrs. Hopkins, Gilkes, and Co., and the Rosedale and Ferryhill Company, it is now proposed to reconstruct and rearrange the undertakings of Messrs. Jackson, Gill, and Co., of the Imperial Ironworks, Eston, Middlesborough. A fair portion of the Britannia Ironworks, at Middlesborough, are again in operation, and rapid progress is being made with the preparations for re-starting other works. The Moor Ironworks, at Stockton, are to be recommenced without delay. There is no material alteration in the quotations of finished iron. Messrs. Bolckow, Vaughan, and Co. are very busy at their Eston Steelworks, and in a short time they expect to have their new Bessemer converters ready, which will enable them to resume the making of steel from Cleveland iron on an extensive scale. The Roseberry Steelworks, which were recently established at Middlesborough, are fairly well employed in the manufacture of steel by the Siemens process.

On Monday the standing committee of the board of arbitration and conciliation for the manufactured iron trade of the North of England held a meeting at Darlington. Mr. W. Whitwell, president

of the board, presided. After a long discussion it was ultimately resolved to recommend to the board the acceptance of a time bargain to May 1, 1882, on the following terms:—

- 1.—The acceptance of an advance of 1s. 3d. per ton on puddling, and 12½ per cent. on their wages, to remain in force until May 1, 1880.
- 2.—The question of the basis of the future sliding scale to be referred to arbitration.

It was decided to hold a full meeting of the board on Monday next for the purpose of confirming the above arrangement.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Dec. 18.—Following the example of the steam colliers the house coal men have held a meeting, and decided by a large majority to form a sliding scale committee. A meeting of delegates representing the house colliers has been held at Llancaich, when the majority in favour of forming the committee was 1413; the committee is to be formed for the house men alone. The wages question also cropped up, but nothing definite was arrived at on it. The masters seem fully willing to enter upon a new sliding scale agreement. The men's representatives have not yet waited on the employers.

There is the general belief current that, with the New Year, we shall enter upon a new and better phase of trade, although the iron and steel industry has substantially improved, and the demand can in no case be found fault with. Already the workmen at Cyfartha, lately reopened, after being so long closed, have got dissatisfied. The strike of the millmen, the discontented section, was, however, very brief. They got what they wanted, and that was an advance in wages. There are now two furnaces in blast at Ynsfach. Already at Dowlais the ironworkers have received an advance of 10 per cent. At Briton Ferry, too, at Messrs. Townsend, Wood, and Co.'s works, an increase in wages, equal to the last reduction, will come in force at the beginning of next month. Prices must be increasing or wages would not go up. There is some expectation of a start at Blaenavon, and there are significant rumours with regard to the Abercarn Works. At Rhymney business is brisk, and a new furnace is to be blown-in at once. Operations at the College Works, Llandaff, have been somewhat impeded by the frost, but the quantity of merchant iron turned out is considerable. As a matter of fact, enquiries for bars have much increased of late, and quotations are improving. The demand for railway iron and steel is good, and prices are steadily rising. Old material is still in demand on account of America. The pig-iron department is active, and prices well kept up. The arrivals of Spanish ore are increasing. Clearances during the past few days have been mainly to the United States, Central America, and Turkey in Europe.

The Tin-Plate Trade has not been quite so lively, but that is generally the case this season of the year. There is a good trade doing, and prices are materially unchanged. The Coal Industry is active so far as shipments and the demand is concerned, but there is no change to note in prices. Probably this is due to some extent to the fact that the supply is actually more than equal to the demand, although there is but little work doing at some of the pits. The demand for steam qualities is good on foreign account. House coals, however, do not appear to be in quite such good request. The patent fuel trade is complained of as inactive, and quotations have of late receded. Large quantities of coal are sent from the Dare Valley, while the coke trade of the Rhymney Valley has much improved.

Registration of New Companies.

The following joint-stock companies have been duly registered:—

THE RIO VERDE RAILWAY COMPANY (Limited).—Capital 1,000,000l., in shares of 20l. The acquisition of a concession, and the construction, maintaining, and working of railways in Brazil. The subscribers (who take one share each) are—J. S. Godfrey, 10, Gloucester-terrace; F. W. Bond, 15, Dorset-square; F. Chapman, 193, Piccadilly; W. B. Godfrey, 165, Camden-road; T. F. Olliffe, 95, Sloane-street; R. McIlwraith, 18, Leadenhall-street; J. Bell, 57, Southwark-street.

MACKIE, BREWTON, AND COMPANY (Limited).—Capital 80,000l., in shares of 50l. The purchasing of the Warrington Guardian and the Crew Printing Works, and to carry on a newspaper proprietor's and printer's business. The subscribers (who take one share each) are—A. Mackie, Warrington; E. Brewton, Warrington; G. Watson, Crew; J. Briggs, Crew; M. Heath, Crew; F. Cooke, Crew; T. Gibson, Crew.

THE VALE OF NEATH TIN-PLATE COMPANY (Limited).—Capital 20,000l., in shares of 250l. To carry on the business of tin andterne plate manufacturers. The subscribers (who take one share each) are—J. Rees, Neath; T. Hopkins, Aberdulais; T. Rees, Neath; J. Kenway, Neath; J. Lewis, Britonferry; W. G. Hibbert, Neath; L. B. Kenway, Neath.

THE INTERNATIONAL BANK OF LONDON (Limited).—Capital 1,000,000l., in shares of 20l. To carry on the business of bankers in all its branches in the United Kingdom and abroad. The subscribers are—P. C. Glyn, 67, Lombard-street, 300; G. H. Palmer, 11, King's Arms-yard, 100; T. J. Reeves, 11, King's Arms-yard, 50; H. Gwinner, 113, Cannon-street, 130; J. Macdonald, 2, Suffolk-lane, 150; C. Holland, 2, Cushion-court, 20; G. B. Hamilton, 2, Cushion-lane, 20; J. W. Anderson, 2, Suffolk-lane, 50; H. R. Uthoff, 147, Leadenhall-street, 100.

UNITED KINGDOM COFFEE TAVERN COMPANY (Limited).—Capital 25,000l., in shares of 1l. To purchase the goodwill, &c., of 132, Euston-road, and to carry on the business. The subscribers are—T. F. Thorne, Islington, 5; W. Weston, Pentonville, 5; J. Craig, Islington, 50; E. Henry, 27, Belsize Crescent, 50; P. Seigh, 4, St. Paul's Church-yard, 25; W. Robinson, White Hart-court, 25; J. Lyons, 29, Pentonville-road, 5.

STEAMSHIP "LASCELLES" (Limited).—Capital 50,000l., in shares of 10l. To carry on the business of a shipowner in all its branches. The subscribers (who take one share each) are—F. C. Cavendish, 21, Carlton House-terrace; J. Ramsden, Barrow-in-Furness; W. Johnston, Liverpool; E. Paul, Liverpool; H. L. Smyth, Liverpool; T. Matheson, Liverpool; J. Rees, Liverpool; E. Johnston, Liverpool.

STEAMSHIP THANEMORE (Limited).—Capital 50,000l., in shares of 10l. To carry on the business of shipowner in all its branches. The subscribers (who take one share each) are—F. C. Cavendish, 21, Carlton House-terrace; J. Ramsden, Barrow-in-Furness; W. Johnston, Liverpool; E. Paul, Liverpool; H. L. Smyth, Liverpool; T. Matheson, Liverpool; J. Rees, Liverpool; E. Johnston, Liverpool.

THE BRITISH PROPERTY INVESTMENT COMPANY (Limited).—Capital 100,000l., in shares of 5l. The investment of money in various substantial securities. The subscribers (who take one share each) are—W. C. Hughes, 3, Lombard-court; F. Davies, 117, Bishopsgate-street; U. Morgan, 63, Coleman-street; G. Harvey, 117, Bishopsgate-street; J. E. Skinner, 27, Little Moorfields; G. Davis, Hampstead; O. Deacon, Loughton.

THE BELGRAVE-ROAD CRICKET AND BICYCLE GROUND COMPANY (Limited).—Capital 10,000l., in shares of 10l. To secure grounds in the vicinity of Leicester for outdoor sports. The subscribers are—W. Billson, Leicester, 30; J. Barratt, Leicester, 30; H. Illey, Leicester, 30; E. Hutchinson, Leicester, 30; C. Newton, Leicester, 30; E. C. Newton, Leicester, 10; R. Billson, Leicester, 30.

THE LANCASTER BREWERY COMPANY (Limited).—Capital 10,000l., in shares of 10l. To purchase certain businesses in Lancaster, and to continue the business of brewers and malsters. The subscribers (who take one share each) are—W. A. Byrom, Lancaster; E. Crompton, Bolton; J. Bottins, Farnworth; W. Sharp, Lancaster; J. Morison, Liverpool; S. S. Lees, Liverpool; M. Bell, Lancaster.

OXFORD AND CAMBRIDGE TOILET CLUB (Limited).—Capital 21,000l., in shares of 1l. 1s. Purchasing and extending the business carried on at 16 and 17, Poultry, E.C. The subscribers (who take one share each) are—W. Brough, 13, Little Marylebone-street; E. Nutt, Hanover Gardens; H. T. Glassbarrow, Forest-gate; J. Reyworth, Holloway; M. C. Nutt, 184, Kennington-road; P. Lewellyn, 4, Fairbank-street; and F. W. Lewis, 5, Albert-street.

THE ANGLO-AMERICAN ELECTRIC LIGHT COMPANY (Limited).—Capital 60,000l., in shares of 10l. To manufacture for sale all kinds

of apparatus used in connection with electric lighting. The subscribers (who take one share each) are—J. T. Courtney, 3, Plowden-buildings; C. Mounsey, 2, Suffolk-lane; A. Macdonald, 2, Suffolk-lane; J. B. Westray, 112, Fenchurch-street; E. Mathey, 78, Hatton-garden; G. Cook, 78, Hatton-garden; W. Ladd, 11, Beak-street.

THE MARLAND BRICK AND CLAY WORKS (Limited).—Capital 25,000l., in shares of 250l. The manufacturing, buying, and selling of clay goods of every description. The subscribers are—W. A. B. Wren, Northam, 16; S. E. Wren, Northam, 1; R. F. Wren, Abbotsburn, 1; T. D. Gregory, Bideford, 1; W. Vicary, Bideford, 1; J. G. Cooper, Bideford, 1; S. Lavington Rooker, Bideford, 1.

THE WOOLLEN TRADES ASSOCIATION (Limited).—Capital 25,000l., in shares of 10l. For the protection of traders connected with wool, cotton, &c. The subscribers (who take one share each) are—H. J. Pratt, 9, Upper Hornsey; C. A. Wren, 57½, Coleman-street; G. Norton, Twickenham; J. Rickett, 86, New North-road; G. W. Cook, Stratford; J. H. Everitt, Acton; W. Barrow, Coleman-street, Exchange.

THE BELGRAVE BREWERY COMPANY (Limited).—Capital 10,000l., in shares of 20l. To carry on the business of brewers and malsters at Hounslow. The subscribers are—C. A. Walter, Kensington, 25; C. B. Corston, Hammersmith, 2; R. H. Williams, Shepherd's Bush, 2; T. W. Pearks, 117, Gloster-road, 2; H. Cobb, 2, Sloane-street, 10; J. R. Walter, 3, Sloane-street, 10; G. A. Cobb, Chelsea, 10; J. Cobb, Hounslow, 10; C. O. May, 42, North Audley-street, 10.

THE TRADERS' BANKING AND SUPPLY COMPANY (Limited).—Capital 1,000,000l., in shares of 2l. To act as agents, bankers, money changers, and discounters in London and Paris. The subscribers are—W. T. Barnett, Highgate, 100; T. Dyson, Windsor, 10; W. Doherty, 6, Great Newport-street, 10; S. Barnes, Camberwell, 100; R. S. Bathe, Notting Hill, 10; A. Littlewood, Notting Hill, 10; A. W. Battey, 15, Sussex-place, 10.

THE OIL VARNISH MANUFACTURING COMPANY (Limited).—Capital 10,010l., in shares of 1l. To manufacture and sell various certain preparations. The subscribers are—W. Powell, Lewisham, 3; T. G. Hickson, Sydenham, 2; A. H. Bailey, 3, Royal Exchange-buildings, 1; W. A. Wheatley, Rotherhithe, 1; D. L. Laughton, Leytonstone, 1; J. Keeley, Rotherhithe, 1; H. Dunkerley, 47, Bridport-patent, 1.

THE PATENT WHITE PRESSED BRICK COMPANY (Limited).—Capital 12,000l., in shares of 5l. The manufacture for sale of the best white pressed bricks according to Pickwell's patent process. The subscribers are—J. Young, Hull, 50; E. Van Fraser, Hull, 100; W. Allot, Hull, 100; G. Calley, Hull, 60; W. L. Grantham, Hull, 50; C. G. Clarke, Hull, 400; R. Pickwell, Hull, 400.

FLINTSHIRE GREAT CONSOLS (Limited).—Capital 30,000l., in 1l. shares. To acquire certain mineral properties named Pen-y-Bryn and Coetia Mawr, situate in the parish of Holywell, Flint, and any other land, mines, minerals, &c., in Wales or elsewhere. To acquire, construct, or hire any plant, machinery, works, utensils, and appliances used in mining or smelting. To prospect for mines, mining setts, and minerals, and with power to construct furnaces, smelting works, mills, canals, machinery, roads, railways, tramways, &c. The subscribers are—W. H. Scott, Holloway, accountant, 1; A. Scott, Nunhead, stationer, 1; W. Morris, New Cross, managing clerk, 1; C. Shore, Brixton, civil engineer, 1; W. Grayson, Walworth, accountant, 1; P. H. Echlin, Camberwell, clerk, 5; W. B. Pratt, Peckham, clerk, 1.

FOREIGN MINING AND METALLURGY.

Recent prices have been generally accepted without discussion in the French department of the Haute-Marne, the demand not having experienced any sensible slackening. Transactions have become less considerable as regards the amount of business done, but there have still been an important number of orders and enquiries. Production is pushed forward to the utmost extent, and it will be difficult to fully meet the requirements of clients for some months to come. Several works have re-lighted furnaces. In the Nord all the works are largely provided with orders, and 7l. 4s. per ton is demanded for manufactured iron. In the Loire-et-Rhone there has been a good current of orders, but no large transactions have been reported. It must not be inferred from this that large transactions have absolutely made default; on the contrary, some important enquiries have been received from various quarters, but an understanding is arrived at with difficulty between producers and consumers.

An attempt made some little time since by the administration of the Belgium State Railways to let a contract for 12,000 tons of steel rails resulted in failure, and the adjudication was repeatedly postponed with similar negative consequences. The administration has now decided on an adjudication of 21,400 tons of ordinary Vignoles rails without accessories, offers of both iron and steel rails to be open to acceptance at a time when many observers believed that steel rails had had their day, and had become defunct, it will not be without interest to watch the course of this adjudication. The policy pursued in the matter by the administration appears to have given satisfaction. In 1873-4 the difference between the price of steel and iron rails exceeded 5l. per ton, but now the margin has become much less considerable, as all the world knows. As regards current features of the Belgian iron trade, prices have continued very firm, and the steelworks, ironworks, blast-furnaces, and construction workshops appear to have plenty of employment. The Belgian Colliery and Metallurgical Company, the Dyle-Bacalon Company, and M. M. Mcaise and Deleuve, of La Louvière, have been especially busy.

The Belgian coal trade congratulates itself that it is approaching the end of the year, because many contracts now in course of execution will run out Dec. 31. Belgian coalowners will, indeed, salute 1880 with much satisfaction, as the first month of the New Year will bring with it an almost certain advance in coal, as matters are now moving on. It is old contracts, and old contracts alone, which have prevented coal from rising in Belgium so rapidly as iron since these old contracts had to be executed, whether coalowners have liked them or not. Orders for the New Year have not made default, but coalowners have shown the greatest reserve in accepting them, as they expect a sharp advance in the first fortnight in January.

It appears that the Monceau-sur-Sambre Blast-Furnaces Company produced in 1878-9 some 27,382 tons of pig and 22,934 tons of iron. The production of rails by the company presented a falling off last year; there was an absence of orders for iron rails, and the management accordingly directed more attention to the production of iron girders. The dividend declared for 1878-9 is 1l. 4s. per share.

GENERATING ELECTRIC CURRENTS.

With a view to obtain induced currents of electricity by the aid of rotating magnets, so that these currents may be used for illuminating and other purposes without affecting the currents which circulate around the field magnets, Messrs. SELLO and EDMUNDS, of Hatton Garden, propose to mount on each side of an annular armature electro-magnets grouped (say) in pairs, which in that case will be set at right angles the one to the other. The poles of the magnets on the opposite sides of the armature will be so shaped as to embrace the armature, and these electro-magnets rotate in opposite directions. The magnets they so coil that the group on one side will present south poles only to the armature, while the group on the other side will present north poles only. The armature is composed of a number of short segment-shaped bobbins of soft iron provided with end plates or flanges. These bobbins are filled with insulated wire, and are secured together end to end, thus constituting an annular armature. The terminal wires of each coil are brought to the outside of the armature, where they may be connected together in groups or in series to give quantity or intensity currents, or may be used to form independent circuits.

The field, or inducing magnets, are driven in opposite directions, and thus caused to act inductively upon each other until the maximum amount of magnetism is attained. It will now be understood that as the magnets on one side of the armature have a south polarity, and those on the other side have a north polarity, currents in one direction only will be induced in the coils of the armature, and therefore no commutator will be required. An advantage incidental to this arrangement of electric generator is that the induced

current may be regulated by the act of regulating the inducing current, which latter result is obtained by increasing or decreasing the resistance in the circuit of the inducing current, and thereby at the same time regulating the amount of motive force required to be given off by the motive-power engine.

DRESSING METALLIC ORES.

In the ordinary method of dressing metallic ores or separating them from the earthy matters with which they are associated in nature the crude ore is crushed, and the coarse powder thereby obtained is exposed to the action of a stream of water. By the action of the stream of water lighter earthy particles are carried away, the heavier particles, consisting of the metallic ore, being left behind. In treating such ores according to one of the improvements of Mr. J. T. DAWES, M.E., of Mold, Flintshire, he reduces the crude ore to a powder, more or less fine, according to the nature of the ore. He introduces the powdered ore into a strong vessel filled with water, and by means of a force pump or other compressing agent compresses the water in the said vessel until its density is so far increased as to exceed that of the earthy matters of the ore under treatment, while being less than that of the denser metallic portion of the ore. The particles of earthy matter rise to the upper part of the vessel, while the heavier particles containing the metal remain at the bottom. The two portions of the crude ore being thus separated are preserved separate by mechanical arrangements in the closed vessel, and the pressure being removed the upper portion of the water with the lighter earthy matter is drawn off and the pure ore afterwards removed. The degree of fineness to which the crude ore to be operated upon is reduced, and the amount of compression to which the water is exposed, vary according to the nature of the ore to be treated.

The proposition to compress water would probably not have been made by any scientific man, as the impossibility of doing so has been long since satisfactorily demonstrated, so that if the inventor desires to get his invention adopted he should at once explain what he means and obtain a fresh patent to secure anything new which he may have discovered. He further states that, according to another of his improvements, he introduces the crushed ore with a stream of water into a vertical hollow cylinder, in which is a rotating vertical archimedean screw, on the broad thread or blade of which the stream of crushed ore is delivered. The screw rotates in a direction proper to raise anything falling on its blade. The obliquity of the blade is such that it does not prevent the heavy particles of the pure ore falling to the bottom of the cylinder, while it raises the lighter particles of earthy matter which pass away at the upper part of the cylinder. In order to effectually separate the ore from the earthy matter it may, where necessary, be subjected to the treatment described two or three times.

AUSTRALIA.—A great stride has been taken in the improvement of our communications with the Australian colonies. The new steamer Orient has arrived at Adelaide in 37 days 22 hours from Plymouth. The distance is calculated at about 12,000 nautical miles, and the steamer maintained an average speed of about 16 miles an hour.

GENERAL MARKETS.—Markets continue to be very unsettled, and prices show a further decline this week. English railways are from 1 per cent. to 2 per cent. lower all round, the greatest fall being in North-Eastern, the traffic receipts showing a greater decrease than expected; with the exception of the receipts of the London and North-Western the returns were unsatisfactory. Foreign stocks do not show any very great changes, though mostly lower for the week, there is not much business doing just now, and the serious aspect of affairs in India and Afghanistan has caused an uneasy feeling, and helps to make markets dull. American and Canadian railways are all lower. Telegraph shares are firm. Consols about an 1/4th weaker. Mines are comparatively quiet, but Parys Corporation and Glenroy inquired after.—W. H. H. WATSON: 1, St. Michael's Alley, Cornhill, Friday, Dec. 19.

COPPER ORES.

Sampled Dec. 3, and sold at Swansea, Dec. 16.

Mines.	Tons.	Produce.	Price.	Mines.	Tons.	Produce.	Price.
Betta Cove.....124	73 1/2	5 2 6	Union.....133	9 1/2	5 2 6	6 8	6
ditto.....124	73 1/2	5 2 6	Mostardeira.....10	19 1/2	12 7 6	7 16	0
ditto.....124	73 1/2	5 3 0	ditto.....11	12 1/2	7 16	0	11
ditto.....124	73 1/2	5 1 6	ditto.....108	6 1/2	3 11 0	3 17	0
ditto.....124	73 1/2	5 4 0	ditto.....33	6 1/2	3 17	0	3
ditto.....123	8 1/2	5 8 0	Berehaven.....72	8 1/2	5 19 6	5 15	6
ditto.....123	8 1/2	5 7 6	ditto.....72	8 1/2	5 15	6	5
ditto.....123	8 1/2	5 5 6	Sobral.....53	10 1/2	11 3 6	11 3	6
Caveira.....72	8 1/2	5 9 0	Cambrian.....30	17 1/2	14 10 6	14 10	6
ditto.....71	8 1/2	5 9 0	ditto.....13	21 1/2	14 10 6	14 10	6
ditto.....71	8 1/2	5 9 0	ditto.....7	13 1/2	9 2 6	9 2	6
ditto.....90	9 1/2	5 12 0	Copper Ore.....43	8 1/2	5 8 6	5 8	6
ditto.....90	9 1/2	5 12 0	ditto.....1	8 1/2	3 8 0	3 8	0
Union.....133	9 1/2	6 7 0	Tigrony Precip.....7	31 1/2	21 10 6	21 10	6
TOTAL PRODUCE.							
Betta Cove.....989		£5154 15 0	Sobral.....53		592 5		
Union.....394		2174 8 0	Cambrian Ore.....50		604 9		
Mostardeira.....162		1174 15 6	Copper Ore.....7		236 13		
Berehaven.....144		846 0 0	Tigrony Precip.....7		150 13		

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Copper Miners' Company.....	286	£ 1,860 10 0
P. Grenfell and Sons.....	175	1,032 3 0
Nevill, Druce, and Co.....	180	1,042 4 0
Vivian and Sons.....	466	2,361 10 0
Williams, Foster, and Co.....	743 1/2	4,293 14 3
Mason and Elkington.....	205 1/2	1,195 1 9
Charles Lambert.....	53	379 15 0
Total.....	2109	£12,164 18 0

NO SALE on Dec. 30.

TOTALS AND AVERAGES.

21 cwt. Produce.	Price.	Per unit.	Standard
Whole sale ... 2109	8 1/2	£5 15 4	13s. 0d. ... £91 1 10

COPPER ORES.

Sampled Dec. 3, and sold at the Royal Hotel, Truro, Dec. 18.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Devon Great Consols.....103	£2 3 0	South Caradon.....89	£4 2 6		
ditto.....101	2 0 6	ditto.....87	4 4 0		
ditto.....95	2 1 6	ditto.....67	4 16 6		
ditto.....91	2 1 6	ditto.....66	4 16 6		
ditto.....83	2 0 6	ditto.....40	3 4 6		
ditto.....78	1 19 0	Marke Valley.....53	3 18 6		
ditto.....73	2 3 6	ditto.....45	3 16 0		
ditto.....71	6 10 6	ditto.....42	3 2 0		
ditto.....67	5 11 6	ditto.....35	4 1 6		
ditto.....60	1 18 6	ditto.....31	3 15 0		
ditto.....46	1 19 6	Glasgow Caradon.....56	3 9 0		
Wheal Crebor.....121	4 2 6	ditto.....54	4 8 0		
ditto.....92	4 0 6	ditto.....50	4 0 6		
ditto.....81	4 2 0	Phoenix.....24	6 11 0		
ditto.....79	4 2 0	ditto.....26	1 6 6		
ditto.....72	6 14 6	Bedford United.....58	4 11 0		
ditto.....44	6 15 6	Gawton.....25	3 15 0		
South Caradon.....91	4 17 0	East Caradon.....15	5 2 0		

TOTAL PRODUCE.

Devon Great Con. 868	£2319 15 6	Phoenix.....60	£257 3 0
Wheal Crebor.....489	2307 14 6	Bedford United.....58	263 18 0
South Caradon.....440	2208 12 0	Gawton.....25	93 15 0
Marke Valley.....206	768 2 0	East Caradon.....15	76 10 0
Glasgow Caradon.....180	632 1 0		

Average standard £102 15 0 | Average produce 6 3/4

Average price per ton £3 17 0

Quantity of ore..... 2321 tons | Quantity of fine copper, 149 tons 0 cwt.

Amount of money £927 11 0

LAST SALE.—Average standard, £104 14 0 | Average produce 6 1/2

Standard of corresponding sale last month, £103 5 0 | Produce, 6 3/4

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons.....	377	£1557 18 9
Grenfell and Sons.....	229 1/2	502 11 6
Nevill, Druce, and Co.....	424 1/2	1324 9 3
Williams, Foster, and Co.....	602 1/2	3075 8 16 6
Mason and Elkington.....	351 1/2	1087 11 6
Charles Lambert.....	326 1/2	1379 12 0
Total.....	2321	£ 8927 11 0

NO SALE on Thursday next, December 25.

Copper ores for sale on Thursday week, at Tab's Hotel, Redruth—Mines and parcels.—Mellaner 576—West Tolgus 230—East Pool 167—North Treskerby 32—Great Orinns and Carlyn Consols 32.—Total, 1037 tons.

NOTICE TO CREDITORS.

IN RE THE FLORENCE AND TONKIN MINING COMPANY (LIMITED), IN LIQUIDATION.

ALL PERSONS having CLAIMS against the above Company are required to SEND IN FULL PARTICULARS of the same to me, on or before THURSDAY, the 15th day of January, 1880, or THEY WILL BE EXCLUDED FROM PARTICIPATING IN THE DIVISION OF THE ASSETS of the said Company.

F. A. COOK, Liquidator,
December 15, 1879. 23, Osborne-terrace, Clapham-road, London, S.W.

PRELIMINARY ANNOUNCEMENT.

STOBROCK DOCKS CONTRACT, GLASGOW.

MR. ARTHUR T. CROW, Contractors' Auctioneer, Manor House, Sunderland, has received instructions from John Jackson, Esq., owing to completion of contract, TO SELL, BY PUBLIC AUCTION, the WHOLE of the VALUABLE CONTRACTORS' PLANT and MATERIAL, Powerful STUD of DRAUGHT HORSES, CARTS, and HARNESS.

Date of sale and further particulars in future advertisements, and catalogues obtained at the place of sale and at the office of the Auctioneer, Sunderland.

FOR SALE, BY PRIVATE TREATY, the EXTENSIVE and VALUABLE SLATE QUARRIES of the UNION SLATE AND SLAB COMPANY (LIMITED), known as

GREAT MOELWYN QUARRY,

Situate at TAN-Y-GRISIAU, in the county of MERIONETH, with the VALUABLE WORKING PLANT belonging to the same.

The QUARRIES, which extend over an area of 356 acres, are held for the term of 21 years from the 5th day of July, 1871, at a moderate royalty.

The SLATE VEINS have been largely developed, and there are MACHINE HOUSES, WORKMEN'S BARRACKS, TUNNELS, ADIT LEVELS, CHAMBERS, TRAMWAYS, INCLINES, RESERVOIR, WATER WHEEL, &c.

The PLANT, consisting of SLATE DRESSING MACHINES, PLANES, SAWS, &c., is of the best description, and is turned by a powerful water-wheel, and is all in first-class order.

There is a tramway running down to the Festiniog Railway in good working order.

The Quarries may be viewed on application to Mr. CADWALLADER ROBERTS, Tan-y-Grisiau.

Further particulars may be obtained, and copies of the lease seen, on application to Mr. H. F. TARDURDIN, 9, Victoria Chambers, Westminster; or Mr. WILLIAM THOMAS, 24, Waterloo-street, Birmingham.

BY ORDER OF THE TRUSTEES OF THE LATE JAMES RADLEY.

TO BE SOLD, BY PRIVATE TREATY, the well-known

POCKET NOOK COPPER SMELTING WORKS,

at ST. HELEN'S, LANCAHIRE.

The premises consist of about 2 1/2 acres of land, nearly all freehold. The works, which are in excellent repair, are very complete, and consist of TEN SMELTING and ROASTING, ONE REFINING, and ONE CALCINING FURNACE, with substantial PLANT, WEIGHING MACHINES, RAILWAY WAGONS, STEAM GRINDING MILL, &c., &c., capable of doing an extensive business.

The offices, laboratory, refinery, smithy, and store rooms are ample and convenient, and the property has the advantage of railway sidings and canal and road frontage, with seven cottages adjoining.

The brand is well known on the market, and the connection is of the highest respectability.

The stock and current contracts may be taken at a valuation to suit the convenience of a purchaser.

Applications to be addressed to Mr. D. McCOLL, at the works.

VALUABLE FREEHOLD COLLIERY WITH COAL AND IRONSTONE MINES.

TO BE SOLD, either the WHOLE or PART of LESSOR'S

INTEREST in a LARGE FREEHOLD COLLIERY in one of the North Midland Counties, also a LARGE AREA of LEASEHOLD COAL, with power to work thereout as much as possible during eleven years, without any further payment to Lessor.

The coal is of high repute in the London and Southern Markets, and the plant is powerful and efficient, and included in the Lessor's interest, and is capable of raising a minimum of 4000 tons of coal per week. There is ample siding accommodation in connection with the Midland Railway Company's Main Line to London.

The Advertiser would be prepared to CO-OPERATE with the PURCHASER in WORKING the COLLIERY, finding his proportion of Capital for such purposes.

For particulars, apply to Messrs. J. and P. HIGSON, Civil and Mining Engineers, 18, Crown Buildings, Booth Street, Manchester.

NANT-Y-GLO, MONMOUTHSHIRE.

TO BE LET, ON LEASE, the NANT-Y-GLO IRONWORKS, known as—

1.—THE LION MILL.

With a BEAM CONDENSING ENGINE, 46 in. cylinder, 8 1/2 ft. stroke (incomplete), with machinery for driving three rail and two blooming mills, with standard, rolls, and connections, and cast-iron flooring plates, covered by a main roof in two spans, 22 1/2 ft. by 87 ft., recently re-lated, and two other roofs, 68 1/2 ft. by 35 ft., and 61 ft. by 31 ft., with bulging or heating furnaces, and four steam boilers. Fitting shop, adjoining, 61 ft. by 30 1/2 ft., with two floors, smiths' shop, 61 ft. by 30 1/2 ft., with eight smiths' hearths.

2.—UPPER MILL AND PUDDLING.

ONE BEAM CONDENSING ENGINE (incomplete), 46 in. cylinder, 8 1/2 ft. stroke, wheel gearing, bed plates for roll standards, squeezers, &c., one egg-end boiler, three tubular ditto (one incomplete), main building, 240 ft. by 51 ft., adjoining buildings, 112 ft. by 28 1/2 ft., and 61 ft. by 28 1/2 ft., with iron roofs, principally unslated, one bulging and fourteen puddling furnaces. Roll turner's shop, adjoining.

3.—MIDDLE FORGE.

ONE BEAM CONDENSING ENGINE, 42 in. cylinder, 8 ft. stroke (incomplete), with machinery for driving two trains of puddling rolls, main building, 226 ft. by 45 ft., adjoining ditto, 104 ft. by 25 1/2 ft., 93 ft. by 19 ft., and 33 ft. by 24 ft., thirty puddling furnaces.

4.—PUDDLING AND PLATE MILL.

ONE BEAM CONDENSING ENGINE, 46 in. cylinder, 8 ft. 4 in. stroke (incomplete), with machinery, &c., four steam-boilers, puddling and bulging furnaces (some in an unfinished state), main building, 278 ft. by 53 1/2 ft., adjoining ditto, 97 ft. by 32 1/2 ft., 100 ft. by 32 1/2 ft., a considerable portion unslated. The above are suitable sites for the manufacture of Tin-Plate, Merchant Bars, Wireworks, Rail, Plate Mills, and also Wagonworks.

All are on and have communication with the London and North-Western Railway, and are well supplied with water.

A Colliery adjoining can be taken in addition with either of the above if desired, from which a supply of Fire-Clay for Brickmaking and other purposes can be obtained.

For further particulars, apply to WILLIAM ADAMS, Esq., C.E., Cardiff; or Messrs. COLBORNE and WARD, Solicitors, Newport (Mon.)

IRON ORE ROYALTY.

TO BE LET ON LEASE, the IRON ORE ROYALTY of the "HOLLINS" ESTATE, in the parish of LAMPLUGH, CUMBERLAND, situate within a short distance of the Whitehaven, Cleator, and Egremont, and Rowrah Branch of the Cleator and Workington Junction Railway.

The Ore Works in the immediate neighbourhood indicate the presence of hematite ore of good quality, and to an enterprising lessee the present is an opportunity seldom to be met with.

Further particulars may be obtained from JOHN DOUGLAS, Esq., of The Grange, Scaforth, near Leeds; or Mr. JOHN MASON, Solicitor, Whitehaven, by either of whom offers will be received.

FOR SALE, A FIRST-CLASS SECOND-HAND 80 in. CORNISH PUMPING ENGINE, with several 11 ton BOILERS.

Apply, WM. BENNETTS, Roskear, Camborne.

FOR SALE, A VERY VALUABLE LEAD AND BLENDE MINE, with PUMPING, DRAWING, and DRESSING MACHINERY, complete.

Also, an EXCELLENT 40 in. cylinder CORNISH PUMPING ENGINE, 10 ft. stroke, with TWO GOOD BOILERS; together with a quantity of other MACHINERY and FURNACE.

Apply to Mr. J. KITTO, Llanidles, Montgomeryshire.

WAGON WORKS AND STOCK.

ON SALE, EXCELLENT WORKS at CHORLEY, LANCAHIRE, and LANTRISANT, SOUTH WALES (recently carried on by Messrs. Baxendale and Heald and Simon Leach), with all necessary MACHINERY and PLANT, together with LARGE STOCK of STORES and MATERIALS.

May be viewed, or full particulars obtained, on application to Messrs. DAVIES and BEE, Public Accountants, Preston.

TANK LOCOMOTIVES FOR SALE—SEVERAL NEW AND SECOND-HAND—by FOX, WALKER, and Co., at VERY MODERATE PRICES FOR CASH.

Apply to HENRY LAWFOED JONES, Bristol.

MINING BUSINESS IN NORWAY.

In the neighbourhood of KONGSBERG, where the renowned Government Silver Mines are situated, are many METAL VEINS discovered and tried. They consist of COPPER, LEAD, and ZINC. It must be observed that lead of this kind contains a good deal of silver.

Further particulars are to be had by applying to Mr. Emil Dybwad's Advertising Agency, Christiania, Norway. (D. 1439.)

GYPSUM AND LIMESTONE.

THE OWNER of an ESTATE in SUSSEX, under which there is a considerable bed of GYPSUM and LIMESTONE, will be willing to ENTER INTO ARRANGEMENTS with PARTIES OF STANDING, who would UNDERTAKE THE WORKING THEREOF, either in shares or on a royalty.

The adjoining property is now in work, and the kilns and machines in action, and a branch railway connected with the South Eastern Railway.

For further particulars, apply to J. C. MAPPIN, Broadfield, Reigate.

FOR SALE.

IRON MINES IN SPAIN.

A NUMBER of IRON ORE MINES, extending over an area of about one square mile, and situated in one of the RICHEST MINERAL DISTRICTS of SPAIN, is OFFERED FOR SALE.

The mines possess the great advantage of a railway running through them, direct to the mole of one of the principal shipping ports of the West Coast of Spain.

As the vendors are not prepared to undertake the working of the mines themselves, they would DISPOSE OF THEM on very moderate terms.

For further particulars apply by letter, addressed "Pax," MINING JOURNAL Office, 26, Fleet-street, London.

THE GREAT DISCOVERY OF TIN AT ROCKS MINE.

Capt. DAVID COCK, of ROCHE, having received a large number of letters congratulating him on the RECENT DISCOVERY OF TIN AT HUGLE, near ROCHE, embraces this opportunity of thanking the writers of them for the very flattering manner in which they have been pleased to address him, and for the very kind expressions that pervade those letters; and he begs to assure them that he is not insensible of the great honour done him thereby. He sincerely begs that each and all accept this notice as a response to their goodness of heart, as it would be extremely inconvenient at this time for him to reply by letter to all the gracious communications received.

WANTED, TO PURCHASE, for the ROCKS TIN MINE:—

THREE STEAM ENGINES.
ONE 50 inch PUMPING ENGINE.
ONE 30 inch ROTARY STAMPING ENGINE.
ONE 20 to 24 inch WINDING ENGINE.
With or without BOILERS.

Apply to Capt. COCK, Rocks Tin Mine, Roche, St. Austell.

TO SHAREHOLDERS OR INTENDING INVESTORS.

THE EAST LONGSTONE SILVER-LEAD MINE COMPANY (LIMITED).

MESSRS. THOMPSON and SON, 145, UNION STREET, PLYMOUTH, invite APPLICATIONS for the FEW REMAINING SHARES at 21s. each, fully paid, in this Mine before the lode be cut in the deep adit level. Many branches of silver gossan have been met with dipping towards the great lode, which indication (see report in Journal) is highly favourable for great profits. These shares must be secured at once to save a high premium which will follow on a rich lode. Full particulars may be had on application.

TO SHAREHOLDERS AND INTENDING INVESTORS.

THE FORTESCUE NATIVE TIN, COPPER, SILVER, AND ARSENIC MINE COMPANY (LIMITED).

This company is issuing 2000 shares, of 20s. each, fully paid up, for extension and calcining works, applications for which must be made at once to secure any portion. The lowest possible estimate from the working of this mine shows over 100 per cent. per annum to investors.

Full particulars may be had of Messrs. THOMPSON and SON, 145, Union-street, Plymouth.

TO INVESTORS—SHARES PAYING OVER 100 PER CENT.

MESSRS. THOMPSON and SON, 145, UNION STREET, PLYMOUTH, publish this day their Investment Circular—"SOW AND REAP"—showing how money may be made by investment. It contains valuable information. Post free to clients and correspondents. Others please enclose 1d. stamp.

TO CAPITALISTS, PROMOTERS, INVESTORS, &c.

A MINING ENGINEER of large experience in the WEST OF ENGLAND is in a position to obtain VALUABLE MINERAL GRANTS for clients on easy terms, and to INTRODUCE PROGRESSIVE PROPERTIES requiring very little additional expenditure to enable considerable returns to be made. With improved trade large profits are certain.

Address, "C.E., F.G.S.," MINING JOURNAL Office, 26, Fleet-street, London.

TO PARENTS AND GUARDIANS.

AN ELIGIBLE OPPORTUNITY is now offered for the SETTLEMENT of an ACTIVE YOUNG GENTLEMAN IN CANADA. He will be enabled to obtain his profession as a Solicitor in five, or if he be a Graduate in three years. Cost of living about £150. In the meantime he will have active work, and obtain a knowledge of the Dominion, which is destined to

ALEX. WILSON & CO., VAUXHALL IRONWORKS, LONDON, S.W.,

MANUFACTURERS OF

THE VAUXHALL DONKEY PUMPS.

THE EXCELSIOR DIRECT-ACTING
PUMPS.

Air Compressors.

Winding Engines.

HOISTING MACHINERY.



ILLUSTRATED AND PRICED CATALOGUES ON APPLICATION.

PARIS,
BROKEN MEDAL, 1867.

ORDER OF THE CROWN OF PRUSSIA.

FALMOUTH,
SILVER MEDAL, 1867.

A DIPLOMA—HIGHEST OF ALL AWARDS—given by the Geographical Congress, Paris, 1875—M. Favre, Contractor, having exhibited the McKean Drill alone as the MODEL BORING MACHINE for the ST. GOTHARD TUNNEL.

SILVER MEDAL of the Highland and West of Scotland Agricultural Society, 1875—HIGHEST AWARD.

At the south end of the St. Gothard Tunnel, where

THE MCKEAN ROCK DRILLS

Are exclusively used, the advance made during eight consecutive weeks, ending February 7, was 24'90, 27'60, 24'80, 26'10, 28'30, 27'10, 28'40, 28'70 metres. Total advance of south heading during January was 121'30 metres, or 133 yards.

In a series of comparative trials made at the St. Gothard Tunnel, the McKean Rock Drill continued to work until the pressure was reduced to one-half atmosphere ($7\frac{1}{2}$ lbs.), showing almost the entire motive force to be available for the blow against the rock—a result of itself indicating many advantages.

The GREAT WESTERN RAILWAY has adopted these Machines for the SEVERN TUNNEL; the LONDON AND NORTH-WESTERN RAILWAY for the FESTINIOG TUNNEL; and the BRITISH GOVERNMENT for several Public Works. A considerable number of Mining Companies are now using them. Shafts and Galleries are driven at from three to six times the speed of hand labour, according to the size and number of machines employed, and with important saving in cost. The ratio of advantage over hand labour is greatest where the rock is hardest.

These Machines possess many advantages, which give them a value unapproached by any other system of Boring Machine.

THE MCKEAN ROCK DRILL IS ATTAINING GENERAL USE THROUGHOUT THE WORLD FOR MINING, TUNNELLING, QUARRYING, AND SUB-MARINE BORING.

The MCKEAN ROCK DRILLS are the most powerful—the most portable—the most durable—the most compact—of the best mechanical device. They contain the fewest parts—have no weak parts—act without SHOCK upon any of the operating parts—work with a lower pressure than any other Rock Drill—may be worked at a higher pressure than any other—may be run with safety to FIFTEEN HUNDRED STROKES PER MINUTE—do not require a mechanic to work them—are the smallest, shortest, and lightest of all machines—will give the longest feed without change of tool—work with long or short stroke at pleasure of operator.

The SAME Machine may be used for sinking, drifting, or open work. Their working parts are best protected against grit and accidents. The various methods of mounting them are the most efficient.

N.B.—Correspondents should state particulars as to character of work in hand in writing us for information, on receipt of which a special definite answer, with reference to our full illustrated catalogue, will be sent.

PORTABLE BOILERS, AIR COMPRESSORS, BORING STEEL, IRON, AND FLEXIBLE TUBING.

The McKean Drill may be seen in operation daily in London.

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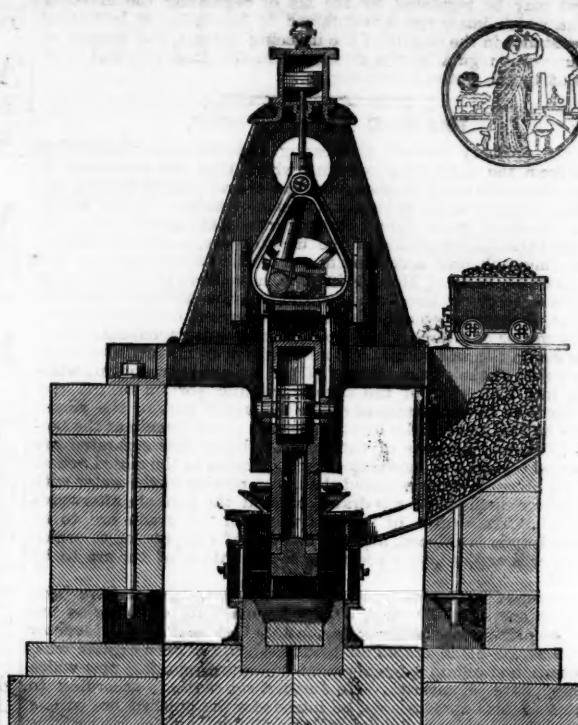
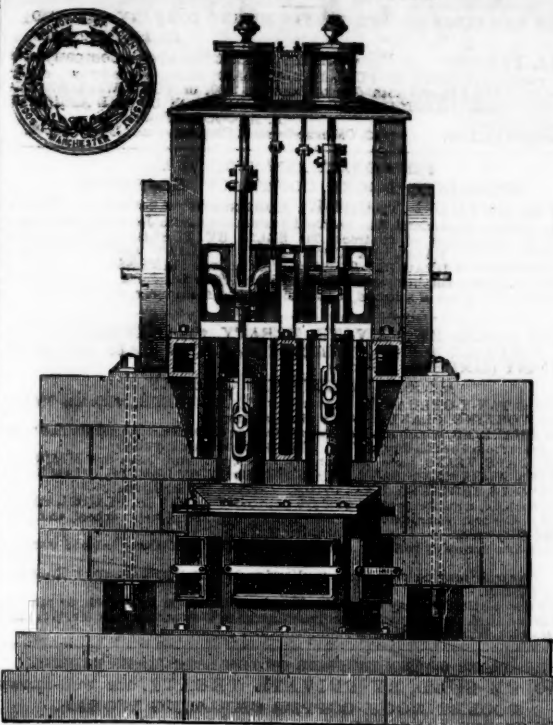
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MESSRS. P. AND W. MACLELLAN, "CLUTHA IRONWORKS,"
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DEBILITY AND NERVOUSNESS.

Free Edition, 152 pages, post free, in envelope, two stamps. The WARNING VOICE.—A Special Medical Book for Young Men on the Cause, Consequence, and Treatment of certain forms of Debility and Nervousness, viz.—Mental and Physical Depression, Palpitation of the Heart, Noises in the Head and Ears, Impaired Sight and Memory, Indigestion, Pains in the Back, Headache, Piles, Constipation, Hysteria, Dizziness, Local Weakness, Muscular Relaxation, Nervous Irritability, Blushing, &c., resulting from Exhaustion of Nerve power, effect of Overwork, City Life, Worry, Brain Foll, Intemperance, and other abuses of the system.
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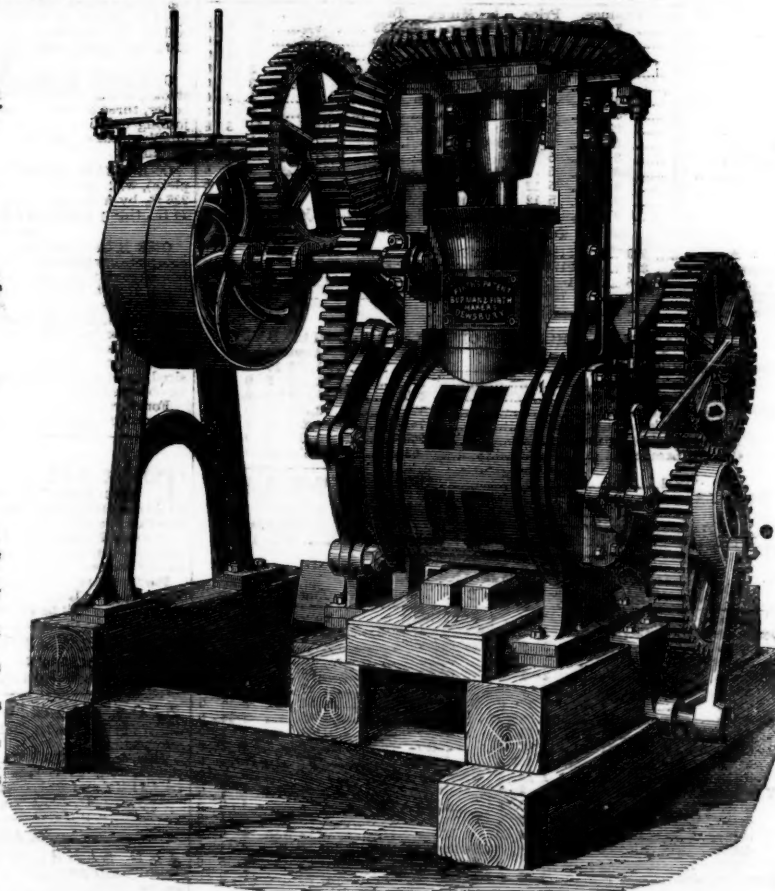
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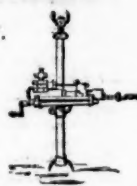
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Shares.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
10000 Caron, i, Cardigan	2 0	0	2 1/2	1 1/2	2 1/2	0 4
10000 Carn Brea, c, i, Illogan	56 7	6	56	53 55	0 0	0 2
10240 Devon Gt. Consols, c, a, Tavistock	1 0	0	7	6 6 1/2	116 15	0 5
4296 Dolcoath, c, i, Camborne	10 14	10	64	50 52 1/2	114 1	3 0
6400 East Pool, c, i, Illogan	0 9	9	22	20 22	16 15	3 0
40000 Glasg. Car. c, [30000 sh. £1 pd., 10000 15s. pd.]	7 1/2	1/2	7 1/2	0 13 10	0 0	0 0
8500 Gorseid and Merilyn Cons., Flint	2 10	0	2 1/2	1 1/2	2 1/2	0 5
15000 Great Laxey, i, Isle of Man	4 0	0	18 1/2	17 1/2	18 1/2	25 0
6400 Green Hurth, i, Durham	0 6	0	4 1/2	5 1/2	2 5	0 3
20000 Grosvinon, i, Cardigan	2 0	0	3 1/2	3 1/2	0 14 10	0 10
2800 Isle of Man, i, Isle of Man	25 0	0	—	—	82 5	0 10
20000 Leadhills, i, Lanarkshire	6 0	0	5 1/2	4 1/2	0 15 0	0 0
40000 Leadhills, i, Lanarkshire	18 15	0	35	30 35	599 10	0 10
10000 Mellanear, c, Hayle	2 0	0	4 1/2	4 1/2	0 12 0	0 0
90000 Minera Mining Co., i, Wrexham	5 0	0	10	10 12	63 5	2 0
20000 Mining Co. of Ireland, c, i, i	7 0	0	—	—	23 17	6 0
888 North Busy, c, i, Chacewater	1 14	0	5	3 4	1 0	0 5
11829 North Hendre, i, Wales	2 10	0	7 1/2	7 1/2	3 2	6 0
8063 Ditto	1 0	0	3	2 1/2	0 4	0 0
10000 Pant-y-Mwyn, i, Mold (8794 sh. iss)	2 0	0	3	2 1/2	0 3	0 2
6000 Pennant, i, bar, North Wales	5 0	0	5	3 1/2	4 1/2	0 10
18000 Prince Patrick, c, i, Holywell	1 0	0	—	—	0 15 0	0 0
12000 Ditto, pref. (8000 sh. issued)	0 10	0	—	—	0 1	6 0
10000 Red Rock, c, i, Cardigan	2 0	0	2	1 1/2	0 4	0 2
12000 Roman Gravel, i, Salop	7 10	0	13	12 1/2	8 10	0 0
512 South Cardon, c, St. Cleer	1 5	0	85	75 80	744 10	0 10
6123 South Condurrow, c, i, Camborne	5 6	13	12	12 1/2	5 17	0 10
4500 South Wheel Franks, c, i, Illogan	7 12	4	10 1/2	9 1/2	39 9	6 0
12000 Tankerville, i, Salop	6 0	0	6 1/2	5 1/2	4 17	6 0
6000 Tankerville, c, i, Pool, Illogan	11 10	0	16 1/2	15 16	50 8	6 0
15000 Van, i, Llandidloes	4 5	0	25	23 1/2	24 1/2	20 0
3000 West Chiverton, i, Perranzabuloe	17 5	0	3	2 1/2	3	55 10
512 West Tolgus, c, Redruth	95 10	0	26	24 26	33 0	0 10
600 West Wheel Soton, c, Camborne	51 0	0	47 1/2	42 1/2	446 0	0 15
1024 Wheel Eliza Consols, i, St. Austell	18 0	0	—	—	27 10	0 2
3000 Wheel Peavor, i, Redruth	7 11	0	20	19 1/2	2 8	6 0

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35500 Alamillos, i, Spain	2 0	0	2	1 1/2	2	1 19	0 0
30000 Almada and Tinto Consol., s, i	1 0	0	1 1/2	1 1/2	0 6	3 0	0 1
20000 Australian, c, South Australia	7 7	6	2	1 1/2	2	1 3	6 0
20000 Cape Copper Mining, s, South Africa	7 0	0	34	33 35	35	36 10	0 12
35000 Cesena Sulph. Co., Romagna, Italy	10 0	0	—	—	0 19	0 0	0 1
10000 Copiapu, c, Chili (220 shares)	16 15	0	—	—	7 11	5 0	0 3
23500 Eberhardt and Aurora, s, Nevada	10 0	0	3 1/2	2 1/2	3 1/2	1 8	0 0
10000 English and Australian, i, B. Aust.	2 10	0	1 1/2	1 1/2	2 17	9 0	0 1
25000 Fortuna, i, Spain	2 0	0	5 1/2	5 1/2	7 6	5 0	1 6
55000 Frontino & Bolivia, g, New Gran.	2 0	0	2 1/2	2 1/2	0 3	6 0	0 1
15000 Linares, i, Spain	3 0	0	5 1/2	5 1/2	6	17 14	0 2
10000 Pontgibaud, s, France	20 0	0	21	19 20	27 17	6 0	0 10
100000 Port Phillip, g, Clunes (25 shares)	1 0	0	—	—	1 12	0 0	0 1
54000 Richmond Consol., s, Nevada	5 0	0	10	9 10	7 15	6 0	7 0
40000 Santa Barbara, g, Brazil	0 10	0	2 1/2	2 1/2	0 8	9 0	1 6
120000 Scottish-Australian Mining Co., i	1 0	0	2 1/2	1 1/2	15	p. cent.	May 1879
80000 Ditto, New	1 0	0	1 1/2	1 1/2	15	p. cent.	May 1879
22500 Sierra Buttes, g, California	2 0	0	1 1/2	1 1/2	2 0	6 0	1 6
40625 Ditto, Plumas Eureka	2 0	0	2 1/2	2 1/2	2 7	0 3	0 3
250000 St. John del Rey (25 Stock and multiples dealt in)	270 280	—	—	—	12 1/2	p. cent.	for half-year, June 1879
25000 Victoria (London), g, Australia	1 0	0	—	—	0 13	1 1/2	0 7
2100 W. Prussian (5500 pref. sh. £10 pd.)	10 0	0	10 1/2	10 1/2	1 14	0 0	4 0

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Shares.	Paid.	Last wk.	Clos. pr.
2560 Aberllyn, i, b, Carnarvon	10 0	0	11 1/2
12000 Asherton, i, Carnarvonshire	5 0	0	1 1/2
11583 Bedford Unit., c, Tavis (21 lib.)	0 4	0	1 1/2
30000 Bettws-y-Coed, i, (20000 sh. issued)	1 0	0	1 1/2
8000 Blaen Caelan, i, Cardigan	3 0	0	1 1/2
3939 Blue Hills, c, St. Agnes	4 6	0	1 1/2
30000 Bodriale, i, b, Denbighshire	1 0	0	1 1/2
200 Botallack, i, c, St. Just	126 5	0	90
10000 British, s, i, Wrexham	2 0	0	3
256 Brownelly, c, St. Neot	0 10	0	1 1/2
20000 Bwlch United, i, (21 sh.) Cardigan	0 12	6	3 1/2
50000 Cambrian, s, i, Cardiganshire	2 0	0	2 1/2
20000 Cen. Foxdale, i, i, of Man (22 sh.)	1 5	0	—
5120 Clementina, i, Llanrwst	1 0	0	1 1/2
25000 Coed Mawr Pool, i, Carnarvon	2 0	0	—
7500 Combella, c, i, Wrexham	2 0	0	—
8000 Combella, c, i, North Devon	0 8	0	—
2450 Cook's Kitchen, i, Illogan	27 4	0	3 1/2
10000 Cornwall Great Consols, Callington	4 0	0	5 1/2
6400 Crook Burn, i, Cumberland	0 5	0	—
14000 Crosswood Mining Lands, i	1 0	0	1 1/2
15000 Cwm Brwyno, i, Cardigan	2 0	0	2 1/2
15000 Cwm Dyffwr, c, i, Wales	1 0	0	—
1280 D'Eresby Consols, i, b, Carnarvon	10 0	0	6
1024 D'Eresby Mountain, i, b, Llanrwst	20 0	0	40
20000 Denbighshire Consolidated, i	3 0	0	3
12000 Derwent, i, Durham	0 3	0	2 1/2
10000 Duffry, i, Durham	0 15	0	6 1/2
5000 East Black Craig, i, Scotland	5 0	0	—
6144 East Cardon, c, St. Cleer	3 4	6	3 1/2
4000 East Chiverton, i, Perranzabuloe	9 10	3	2 1/2
3000 East Craven Moor, i, Pateley Bdg.	10 0	0	9
12000 East Crebor, c, Tavistock	0 1	0	1 1/2
300 East Darren, i, Cardiganshire	32 0	0	—
30000 East Florida, s, i, Cardiganshire	1 0	0	—
8000 East Goginan, i, Cardigan	2 0	0	—
10000 East Longstone, s, i, Llanrwst	1 0	0	1 1/2
21000 East Roman Gravel, i, Salop	0 10	0	—
9000 Ditto, 6 per cent. pref. (fully pd.)	1 0	0	—
18000 East Van, i, Llandidloes	5 0	0	2 1/2
1114 East Wheel Lovell, i, Helston	10 8	6	2 1/2
6000 Florence, s, i, St. Ive	5 0	0	5
12500 Froghog, i, Cardigan (1000 sh. iss.)	2 0	0	4
3950 Gawton, c, Tavistock	4 9	6	1 1/2
14000 Glenroy, s, i, Isle of Man	4 5	0	1 1/2
20000 Gores, s, i, Carmarthen	1 0	0	—
20000 Great Dyffry, s, i, Montgomery	1 0	0	1 1/2
20000 Gt. E. Foxdale, i, i, of Man (21 sh.)	0 18	0	—
12000 Great Holway, i, Flintshire	5 0	0	5
6000 Great Wh. Eleanor, i, North Bovey	1 0	0	—
9380 Gunnslake (Clitters), i, c	5 5	0	1 1/2
10000 Gwyn-y-Mynydd, i, i, Flintshire	4 0	0	5 1/2
10000 Harehope Gill, i, Durham (21 sh.)	5 0	0	—
1200 Hartington Moor, c, i, Derby	1 0	0	1 1/2
6400 Harwood, i, Durham	0 15	0	1 1/2
3000 Herodfoot, i, near Liskeard	0 10	0	3 1/2
8000 Hingston Down, c, i, Salop	0 7	0	—
8000 Killifreth, i, Chacewater	2 12	6	1 1/2
30000 Lady Ashburton, c, i, Callington	1 0	0	—
12000 Ladywell, i, Salop	1 0	0	1 1/2
12000 Ditto, 10 per cent. pref., £1 each	10 0	0	1 1/2
5000 Lead Era, i, Mold	2 10	0	3 1/2
2500 Levant, c, St. Just	10 14	6	—
6000 Livingstone Consols, i, St. Agnes	0 10	0	—
15000 Llandegla, i, Llanarmon	5 0	0	1 1/2
6000 Llansawel, i, Wales	5 0	0	6 1/2
10000 Llanx, s, i, Perranzabuloe	1 0	0	—
5120 Lovell, i, Wrexham	0 18	0	1 1/2
30000 Llanrwst, i, Carnarvon	1 17	0	1 1/2
7500 Ditto, 10 per cent. pref.	2 0	0	2 1/2
9000 Marke Valley, c, Linkinhorne	5 3	6	1 1/2
1800 Mawston, i, South Wales	1 0	0	2 1/2
6000 Medlyn Moor, i, Wrexham	3 15	0	—
11900 Melyndwr, i, Cardigan	3 0	0	—
2800 Mid-Devon, c, Devon	0 6	8	1 1/2
17000 Ditto	0 3	4	1 1/2
8000 Mineral Corporation of Gt. Britain	10 0	0	13
11000 Mynydd Goredig, i, Cardigan (Red)	5 0	0	2 1/2
12000 Morda Du, c, i, Angles	1 0	0	—
12000 Mynbyll, i, i, Flintshire	2 10	0	—
25000 Nant-y-Ronen, s, i, Cardigan	1 0	0	—
4878 New Bronfloyd, i, Cardigan (25 sh.)	3 16	0	—
12000 New Cathedral, c, i, Gwynnapp	1 0	0	1 1/2

NON-DIVIDEND MINES—continued.

Shares.	Paid.	Last wk.	Clos. pr.
2400 New Cook's Kitchen, i, Illogan	6 15	0	6 1/2
3000 New Cwmystwith, s, i, Cardigan	5 0	0	—
8000 New Dolcoath, c, i, Camborne	3 0	0	1 1/2
3500 New Tincroft, c, i, Lelant	6 0	0	—
5000 North Alfred Consols, c, Phillack	6 2	0	1 1/2
10000 N. D'Eresby Mount, s, i, b, Carnarv.	1 0	0	1 1/2
2000 North Levant, i, c, St. Just	13 6	0	5 3/5
50000 North Molton, c, m, v, Devon	1 0	0	1
6000 North Penrith, i, c, Gwynnapp	0 10	0	1 1/2
2938 North Trekerby, c, St. Agnes	8 17	10	—
12000 Pandora, i, Carnarvon	2 0	0	1
6000 Park Valley, s, i, North Devon	0 4	0	1 1/2
6000 Parracombe, s, i, Devon	0 5	0	—
45000 Parys Corporation, c, Anglesa	1 0	0	1 1/2
7500 Pateley Bridge, i, Yorkshire	1 0	0	1 1/2
15000 Ditto (also 7500 sh. not issued)	0 17	0	—
12000 Pen-y-Orsedd, i, i, Flintshire	1 0	0	1 1/2
5000 Penrhall, i, St. Agnes	3 17	6	2 1/2
15000 Perran Consols, s, i, Perranzabuloe	1 0	0	—
12000 Phoenix, W. Phoenix, i, c, Link. s.	5 10	3	5 1/2
8000 Plas Ddu and Park, i, Wales	5 0	0	5 4/5
7000 Picton, s, i, Holywell, fully paid	1 0	0	1 1/2
6000 Plympton Mining and Arsenic	1 0	0	3 1/2
12000 Plynlimon, i, Llanidloes	2 0	0	6 1/2
10000 Port Nigell, s, i, Carnarvonshire	2 0	0	1 1/2
2000 Pridaux Wood, i, Llanvory	5 0	0	—
12000 Prince of Wales, c, i, Calstock	0 7	6	1 1/2
5000 Rhyl, i, Mold	10 0	0	—
15000 Rookhope, i, Durham	1 10	0	1 1/2
50000 So. Cambrian, i, Cardiganshire	1 0	0	1 1/2
6000 South Cwmystwith, i, Cardigan	2 0	0	—
9000 South Darren, i, Cardigan	1 10	0	3 1/2
39000 South de Eresby Mountain, i	1 0	0	1 1/2
512 South Dolcoath, c, i, Redruth	12 5	0	—
18000 South Roman Gravel, i	1 10	0	3 1/2
8000 South Rooker, i, c, Camborne	8 5	0	—
6000 South Tolcarne, i, c, Camborne	2 8	0	—
40000 South Wheel Crebor, c, Tavistock	1 0	0	1 1/2
2043 South Wheel Croft, c, Illogan	16 7	0	4 1/2
6000 St. Lawrence, Amal, i, Flintshire	2 0	0	—
19000 St. Patrick, i, Halkin, Holywell	1 0	0	1 1/2
30000 Talybont, s, i, Cardiganshire	1 0	0	—
4000 Tamar, s, i, Beaulieu	1 0	0	1 1/2
6400 Teesdale, s, i, Durham (pref.)	1 0	0	6 1/2
10000 Temple, i, Cardigan	1 0	0	—
5000 Treleigh Wood, i, Redruth	6 1	0	—
12000 Trethellan, s, i, Oranstock	2 0	0	—
6400 Truro, i, i, Serquis, Flintshire	10 0	0	—
5000 Tyn-y-Fron, s, i, Cardigan	1 0	0	1 1/2
5000 Ditto	0 7	6	1 1/2
10000 Van Cons. and Glyn, i, Llanidloes	2 0	0	—
10000 Vaughan, s, i, Cardiganshire	10 0	0	—
18000 Victor, s, i, Flintshire (21 share)	0 5	0	—
12000 West Asherton, i, Carnarvon	2 0	0	3 1/2
6000 West Bassett, c, Illogan	7 0	4	11 1/2
30000 West Craven Moor, i, Pateley Bridge	10 0	0	8 7/8
12000 West Goginan, i, Cardiganshire	2 0	0	1 1/2
12000 West Holway, i, Flintshire	1 0	0	1 1/2
6000 West Kitty, i, St. Agnes	0 2	0	2 1/2
3000 West Mary Ann, i, Menheniot	1 0	0	1 1/2
100 Westminister Bog Issa, Llanarmon	5 0	0	5 6
20000 West Pateley Bridge, i, Yorkshire	1 0	0	—
1783 West Poldice, St. Day	11 0	0	—
10000 Wt. Rooker, i, c, i, b, Camborne	5 10	0	—
2043 West Wheel Franks, c, Illogan	29 6	3	12 11 12
3000 West Wheel Peavor, i, Redruth	1 5	0	6 6 1/2
12000 West Wye Valley, s, i, Montgomery	3 0	0	1 1/2
6000 Wheel Agas, c, Illogan	13 15	0	6 1/2
6144 Wheel Bassett, c, Illogan	33 2	6	3 2 1/2
6000 Wheel Coates, i, St. Agnes	2 0	0	—
2585 W. Com. s, i, No. s, i, c, Gwynnapp	4 8	0	8 1/2
6000 Wheel Crebor, i, Tavistock	4 8	0	8 1/2
5179 Wheel Grenville, c, Camborne	4 10	0	5 1/2
2400 Wheel Jane, i, Kea	5 13	10	5 1/2
4295 Wheel Kitty, i, St. Agnes	5 4	8	3 2 1/2
80 Wheel Owles, i, St. Just	178 15	0	100 100
12000 Wheel Russell, c, Tavistock	2 1	6	—
10000 Wheel Sisters, i, Lelant	16 10	0	13 1/2
4096 Wheel Uny, i, c, Redruth	15 1	0	13 1/2
10000 Wye Valley, i, Montgomery	3 0	0	1 1/2